LSASD Project ID: 20-0018

Final Report

Characterization of Ambient PFAS in the Chattooga River Watershed

Project Location: Chattooga River Watershed (Georgia and Alabama)

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The activities depicted in this Final Report are accredited under the US EPA Region 4 Laboratory Services & Applied Science Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.

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Tables and Figures

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[1] Project Leader and all Task Leaders assisting with this project have been deemed competent by LSASD management, under ISO 17025 accreditation, to conduct the tasks required to fulfill the prescribed goals.

SECTION B: Project Overview & Design

B1. Introduction

The headwaters of the Chattooga River begin in Walker County north of LaFayette Georgia. The Chattooga River flows southwest across the Alabama-Georgia state line and feeds into Weiss Lake near Gaylesville Alabama. Per- and polyfluoroalkyl substances (PFAS), specifically perfluorooctanesulfonate (PFOS), were detected in the surface water at several sites along the

Chattooga River during a 2018 study performed by U.S. EPA Region 4's Laboratory Services & Applied Science Division (LSASD) (USEPA, 2018*b*). PFAS have also historically been detected downstream at public drinking water intakes in Centre Alabama and Gadsden Alabama. PFAS were also detected in the sediments and surface waters in the nearby Upper Coosa River Basin in a 2019 study performed by LSASD (USEPA, 2019*a*).

PFAS are man-made chemicals that do not occur in nature and have been found to be persistent and accumulate in both the environment and the human body via exposure pathways such as consumption of contaminated food and drinking water. PFAS have been extensively used in industry, manufacturing of commercial products, and as a component in aqueous film forming foams (AFFF) used for firefighting. There is evidence that suggests exposure to certain PFAS can lead to adverse health effects and are an emerging concern to public health. PFAS is a generic nomenclature encompassing a broader array of chemicals, with the most studied being perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS). The U.S. EPA has issued a recommended Lifetime Health Advisory (LHA) for finished drinking water of 70 ng/L (ppt) for combined and compound-specific concentrations of PFOA and PFOS. Further information regarding PFASs can be found at http://www.epa.gov/pfas.

As guided by findings of the 2018 Chattooga River Study (USEPA, 2018*b*), the 2019 Weiss Lake Study (USEPA, 2019*d*), the 2019 Coosa River Basin Sediment Screening Study (USEPA, 2019*a*), and directives of the R4 Water Division, this study targeted near-base flow conditions as background concentrations of PFAS for the Chattooga River Watershed were largely unknown. This study observed background concentrations of PFAS in surface water and co-located sediment samples to characterize the relative distribution of PFAS in the Chattooga River Watershed along key segments determined by the Water Division. Ambient surface water concentrations of PFASs were coupled with flow measurements to calculate instantaneous mass loading rates at near-base flow conditions. Sampling locations bracketed off the following key segments of the Chattooga River based on the following municipalities in Georgia: Lyerly, Summerville, Trion, and LaFayette.

B2. Methodology

Unless otherwise indicated, all field activities described below were conducted in accordance with the approved Characterization of Ambient PFAS in the Chattooga River Watershed Sample and Analysis Plan (SAP) (USEPA, 2019*b*), standard operating procedures and policies outlined in the Applied Science Branch Quality Assurance Project Plan (USEPA, 2018*a*), and LSASD's ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board.

Study Area:

The study area for this project included the main stem of the Chattooga River and several inflowing tributaries. Sampling locations ranged from the lower Chattooga River near Gaylesville Alabama where the river terminates into Weiss Lake, to the headwaters of the Chattooga River north of

LaFayette Georgia (Figure 1). A total of 13 sites were assessed, which included 8 stations on the main stem of the Chattooga River, 1 station on Town Creek which forms the headwaters of the Chattooga River, 3 tributary stations in watersheds with active biosolids land application sites, and 1 station on Mill Creek, a tributary in Alabama. The 3 sampled tributaries with active biosolids land application sites include Hinton Creek (HIC01), Raccoon Creek (RAC01), and Teloga Creek (TEC01). Station RAC01 is also located upstream of a Public Drinking Water Intake for the city of Summerville. See Table 1 for coordinates and descriptions of all sites sampled during this study. Field samples and measurements for this study were all collected the week of November 4, 2019. Sample collection, preservation, and holding times are listed in Table 3.

Surface Water Sample Collection:

Surface water samples were collected approximately 6-inches below the water surface at all sites in 15 mL polypropylene vials and analyzed for the 23 PFAS analytes listed in Table 4. All surface water analyses were conducted at the Region 4 LSASD Laboratory in Athens Georgia.

Apart from station CHR04, all other surface water samples were collected directly into the sample containers via the direct fill method. The surface water sample at CHR04 was collected via a stainless-steel bucket lowered over the bridge crossing mid-stream, the sample was then transferred into the sample container. Differences between sampling methods conducted at the sites were due to both access and safety considerations for field personnel.

Sediment Sample Collection:

Sediment samples were collected at all sites in 50 mL polypropylene vials and analyzed for the 23 PFAS compounds listed in Table 4. All sediment analyses were conducted at the Region 4 LSASD Laboratory in Athens Georgia.

Apart from station CHR04 and CHR06, all other sediment samples were collected by hand with a stainless-steel scoop. Sediment samples at CHR04 and CHR06 were collected via stainless-steel petite Ponar sediment grabs. All sediment samples consisted of a composite of 3 separate grabs (by scoop or Ponar) that were first homogenized in a stainless-steel bowl with a stainless-steel spoon before being transferred into the appropriate containers. Differences between sampling methods conducted at the sites were due to both access and safety considerations for field personnel.

In-Situ Water Quality Field Measurements:

Surface water quality measurements of temperature, dissolved oxygen, specific conductance, turbidity, and pH were collected *in-situ* via YSI EXO1 multi-parameter data sondes at each sample location. See Table 2 for a detailed list of *in-situ* water quality parameters.

Stream Flow Measurements and Mass Loading:

The SAP for this study identified the threshold for near-base flow conditions as a discharge below the monthly mean for November as recorded by historical streamflow data collected at the USGS gage located on the lower Chattooga River (USGS 02398300) over a 30-year period. The threshold value of 450 ft^3/s was met for this study, as the provisional USGS gage data reported a daily discharge of 427 ft^3/s on November 6, 2019. Field sampling began in the headwaters and moved downstream to best meet the defined threshold. Sampling of CHR01, the furthest downstream station, occurred on November 6, 2019.

Stream flow measurements were collected at all sites (Table 1 and Figure 1) via acoustic doppler velocimeter (ADV) or a remotely-operated acoustic doppler current profiler (ADCP) depending on water depth and flow. A Sontek Flowtracker 2 was used to collect ADV flow measurements at sites with wadeable cross-sections. A Rio Pro 1200kHz ADCP by Teledyne RD Instruments mounted to a remotely-operated Q-Boat by Ocean Science was used in the larger or deeper sites for ADCP flow measurements. Field measurements of streamflow were used in conjunction with surface water PFAS concentrations at stations with positive detections of PFAS to compute instantaneous mass loading rates in units of grams per day.

SECTION C: Results & Discussion

C1. Analytical Data

Per- and Poly-Fluoroalkyl Substances (PFAS) in Surface Waters:

Surface water samples were collected at all stations listed in Table 1 and analyzed for the 23 PFAS target analytes listed in Table 4. A summary of detected PFAS in surface water samples are listed in Table 5. A total of 7 distinct PFAS compounds were detected in surface water samples collected throughout the Chattooga River Watershed. The 7 compounds detected in surface waters in this study belong to 2 separate functional groups which include perfluoroalkyl carboxylic acids (PFCAs) and perfluoroalkane sulfonic acids (PFSAs). The PFCAs detected in surface waters included the following compounds in decreasing order of carbon chain length; perfluorooctanoic acid (PFOA, C8), perfluoroheptanoic acid (PFHpA, C7), perfluorohexanoic acid (PFHxA, C6), perfluoropentanoic acid (PFPeA, C5), and perfluorobutyric acid (PFBA, C4). The PFSAs detected in surface water samples included perfluorooctanesulfonate (PFOS, C8) and perfluorobutanesulfonate (PFBS, C4). Long-chain compounds of both PFCAs and PFSAs are considered public health priorities due to their increased residence times in humans and wildlife (CONCAWE, 2016). Both PFCAs and PFSAs have been used by industry as wetting, dispersing, emulsifying, and foaming agents to produce industrial and consumer products ranging from protective coatings for fabrics, carpets, textiles, and paper; as well as formulations of insecticides and surfactants (Wang *et al*., 2017). The composition, classification, and distribution of PFAS detected in surface water samples are outlined in Figures 2, 3, and 4.

There are currently no maximum contaminant levels (MCLs) established for PFAS. The U.S. EPA has issued a Lifetime Health Advisory (LHA) level of 70 ng/L or parts-per-trillion (ppt) for combined and chemical-specific concentrations of the long-chain compounds PFOA and PFOS in finished drinking water. The LHA is not directly comparable to surface water concentrations. Combined concentrations of PFOA and PFOS were detected at the highest relative levels in surface waters at HIC01 (312 ng/L) and TEC01 (200 ng/L). Combined concentrations of PFOA and PFOS were also detected in the following samples: CHR01 (45 ng/L), CHR01(DUP) (71 ng/L), CHR02 (79 ng/L), CHR03 (48 ng/L), CHR04 (75 ng/L), CHR05 (41 ng/L), CHR06 (39 ng/L), and RAC01 (95 ng/L). No PFAS compounds were detected at or above the minimum reporting limit (MRL) in the samples collected from headwaters of the Chattooga River (CHR08 and TOC01). No PFOA nor PFOS was detected at CHR07 downstream of LaFayette or at MIC01. The distribution and concentrations of PFOA and PFOS in surface water samples are shown in Figures 2 and 5.

The diversity of surface water samples with more than one PFAS compound detected were relatively similar, with results ranging from 4 to 7 distinct compounds with ∑PFAS ranging from 749 ng/L at CHR04 to 5,840 ng/L at TEC01. Surface water samples collected from the inflowing tributaries (HIC01, RAC01, and TEC01) on average had much higher ∑PFAS concentrations then the samples collected on the main stem of the Chattooga River. Specifically, the 3 inflowing tributaries (HIC01, RAC01, and TEC01) in watersheds with active biosolids land application (year 2018) had the 3 highest ∑PFAS concentrations across all sites. The short-chain PFCA and PFOA replacement, PFPeA, was the most abundant PFAS compounded detected in the Chattooga River Watershed. PFHxA, another short-chain PFCA, was the second most abundant PFAS detected in the surface waters.

The “U” qualifier on tables and figures denotes that the analyte was not detected at or above the reporting limit. The “J” qualifier on tables and figures denotes that the identification of the analyte was deemed acceptable by the laboratory, but the reported value is an estimate. An accompanying “Q-2” qualifier denotes that the result was greater than the Method Detection Limit (MDL) but less than the MRL. The complete analytical results, MRLs, and associated qualifiers for all analyses of PFAS in surface water samples are listed in Appendix A of this report.

Per- and Poly-Fluoroalkyl Substances (PFAS) in Sediments:

Sediment samples were collected at all sites listed in Table 1 and analyzed for the 23 PFAS target analytes listed in Table 4. A summary of detected PFAS in sediment samples are listed in Table 6 and shown in Figure 8. A total of 12 distinct PFAS compounds were detected in sediment samples collected throughout the watershed. These 12 compounds detected in sediments belong to 2 separate functional groups which include perfluoroalkyl carboxylic acids (PFCAs) and perfluoroalkane sulfonic acids (PFSAs), the same 2 functional groups detected in surface waters. The PFCAs detected in sediments included the following compounds in decreasing order of carbon chain length; perfluorotridecanoic acid (PFTrDA, C13), perfluorododecanoic acid (PFDoA, C12), perfluoroundecanoic acid (PFUdA, C11), perfluorodecanoic acid (PFDA, C10), perfluorononanoic acid (PFNA, C9), perfluorooctanoic acid (PFOA, C8), perfluoroheptanoic acid

(PFHpA, C7), perfluorohexanoic acid (PFHxA, C6), perfluoropentanoic acid (PFPeA, C5), and perfluorobutyric acid (PFBA, C4). The PFSAs detected in sediment samples included perfluorooctanesulfonate (PFOS, C8) and perfluorobutanesulfonate (PFBS, C4). The composition, classification, and distribution of PFAS detected in sediment samples are outlined in Figures 7 and 8.

All sediment samples collected during this study contained at least 3 distinct PFAS compounds, including the headwaters samples. The diversity of detected PFAS ranged from 3 to 9 distinct compounds with ∑PFAS ranging from 307 ng/kg (dry) at CHR01(DUP) to 4,270 ng/kg (dry) at CHR02. The elevated levels of PFAS detected at CHR02 relative to other sites is likely partially attributed to the relatively lower percent solids value at CHR02 (Table 6). Station CHR02 was selected because of its proximity to biosolids land application sites. It should be noted that the second highest ∑PFAS concentrations were detected on Hinton Creek at HIC01, which feeds into the Chattooga River just upstream of station CHR02. This inverse relationship between highest ∑PFAS concentration in sediment and lowest percent solids value was also observed in another 2019 study performed by LSASD (USEPA, 2019*b*), which also corresponded to the highest TOC concentration. The low percent solids values may indicate the presence of a high concentration of fines and organic material. Analysis of Total Organic Carbon (TOC) was not included in the scope of this study. It is recommended that future regional studies of sediment PFAS concentrations include TOC analysis due to its potential effects on PFAS adsorption capacity, as increased TOC may increase adsorption capacity.

The "U" qualifier on tables and figures denotes that the analyte was not detected at or above the reporting limit. The "J" qualifier on tables and figures denotes that the identification of the analyte was deemed acceptable by the laboratory, but the reported value is an estimate. An accompanying "Q-2" qualifier denotes that the result was greater than the Method Detection Limit (MDL) but less than the MRL. The "QM-1" qualifier indicates that the matrix spike recovery was less than the method control limits. The complete analytical results, MRLs, and associated qualifiers for all analyses of PFAS and percent solids in sediment samples are listed in Appendix B of this report.

C2. Field Measurements

In-Situ Water Quality:

Instantaneous measurements of temperature, pH, specific conductance, dissolved oxygen, and turbidity were collected *in-situ* at all sites and are summarized in Table 7. Water temperature ranged from 12.2 – 15.5°C across all sites, roughly depending on the time of day in which the measurement was collected. The pH of surface waters was observed to be relatively consistent throughout the watershed during the study period, ranging from 7.56 – 7.82 S.U. Specific conductance ranged from 153.0 – 329.6 µS/cm. The measured values of dissolved oxygen ranged from 8.71 – 10.18 mg/L across all sites and was dependent on the time of day in which the

measurement was collected. Turbidity generally increased as the station locations moved downstream the main stem of the Chattooga River, ranging from 1.93 – 16.81 for all sites.

Stream Flow Measurements:

Stream flow measurements were collected at all sites via ADCP or ADV depending on the velocity, depth, and width of the stream (Table 5 and Figure 6). The flows measured in this study ranged from the lowest flow of 1.75 ft^3/s in the headwaters at CHR08 to the highest flow of 367 ft^3/s at the furthest downstream station CHR01.

C3. Computations & Analysis

Mass Loading Rates:

Instantaneous mass loading rates were calculated in grams per day for all PFAS detected in surface water (PFBA, PFBS, PFHpA, PFHxA, PFOA, PFOS, PFPeA), combined concentrations of PFOA and PFOS, and ∑PFAS concentrations. Computed mass loading rates and associated surface water concentrations of PFAS are summarized in Table 5 and Figure 6. Stream flow conditions were below the near-base flow thresholds set for this study. The near-base flow conditions aimed to isolate surface water PFAS inputs to groundwater intrusion, dissolution of PFAS adsorbed to sediments, transformation of precursor compounds within the sediment and surface waters, air deposition, and point-source discharges.

The highest concentrations of PFAS in surface waters were observed on Teloga Creek at TEC01 (Table 5 and Figure 2). Teloga Creek accounted for approximately 56% of the combined PFOA and PFOS loading, and 77% of the ∑PFAS mass loading calculated for the next downstream station on the Chattooga River at CHR06 with a flow contribution of approximately 11%. All detected PFAS compounds flowing from Teloga Creek were diluted after the confluence with the Chattooga River (Table 5). The ∑PFAS mass loading on the Chattooga River increased as station locations moved from the headwaters at CHR08 to the furthest downstream station at CHR01. The largest increase in the ∑PFAS mass loading between stations on the main stem was observed moving from CHR07 to CHR06. While the inputs from Teloga Creek account for much of the increase in the ∑PFAS mass loading, other sources may exist between CHR07 and CHR06. Cane Creek flows into the Chattooga River upstream of CHR06 and downstream of the Teloga Creek confluence.

PFAS Class and Functional Groups in Sediment and Surface Water:

PFAS detected in sediment and surface waters were classified by both the functional group (i.e. PFCAs or PFSAs) and carbon chain-length class (i.e. short-chain or long-chain) as defined in ITRC (2018). Classifications are summarized in Table 9 and results are shown in Figures 3 and 7 (ITRC, 2018). In general, surface water samples with detected PFAS were mainly comprised of short-chain PFCAs (ranging 79 – 100%) throughout the watershed. Moderate levels of short-chain PFSAs (ranging 9 – 12%) were detected on the main stem of the Chattooga River downstream of and including CHR06. PFOS was the only long-chain PFSA detected in the surface waters, with a maximum of 4% at CHR04.

Sediment samples were primarily dominated by PFCAs (ranging 45 – 87%), particularly short-chain PFCAs (ranging 17 – 76%) across all sites. Moderate levels of PFOS, the only long-chain PFSA (ranging 8 – 55%) were also detected across all sites. Sediments at stations CHR02, CHR03, CHR06, and TOC01 were dominated by long-chain PFSAs (PFOS) (ranging 38 – 55%). Short-chain PFSAs were only detected in 2 sediment samples and at minimal overall percentages (CHR02 and TEC01 at 8%). All sediment results from stations located downstream within close proximity of known biosolids land application sites (TEC01, RAC01, and HIC01) are dominated by short-chain PFCAs.

In the presence of organic carbon, the adsorption capacity of PFAS increases with carbon chain length and PFSAs have a higher adsorption capacity than PFCAs of the same carbon chain length (ITRC, 2018; CONCAWE, 2016). Thus, the significant composition of short-chain PFCAs present in both the surface waters and sediments would suggest the presence of a local source of short-chain PFCAs and/or their precursors within the Chattooga River Watershed.

C4. Data Quality

Equipment Decontamination & Preparation:

Equipment used for collecting samples to be analyzed for PFAS (i.e. stainless-steel buckets, spoons, bowls, and petite Ponars) were washed using Luminox® in warm tap water, rinsed with PFAS-free water, air-dried on clean plastic sheets and sealed in clean plastic in preparation for field use. Personnel were required to wear clean nitrile gloves during all processes of cleaning, handling, and packaging equipment. PFAS-free water was certified to be PFAS target analyte free and supplied by the LSASD laboratory in a clean HDPE container. Equipment rinse blank quality control samples were collected after the decontamination process for each type of equipment and for each lot of nitrile gloves used for sampling and submitted to the LSASD laboratory for analysis of PFAS target analytes for verification before field use. No PFAS target analytes were detected at or above the MRLs for any equipment rinse blank quality control samples and were therefore deemed acceptable within the scope of this study (USEPA, 2019*c*).

Field Sampling Quality Controls:

Surface water and sediment samples collected for PFAS analysis were sampled via a trace level sampling technique to avoid cross-contamination of PFAS samples due to sample collection and handling. This process required two field personnel for PFAS sample collection. A designated sampler handled the sample media and sample container only. A second designee operated sampling equipment and assisted with sample container packaging and labeling. Sampling equipment known or suspected to contain PFAS was avoided during sampling activities. Field quality control samples which included field blanks and a trip blank were collected to account for the potential of cross-contamination. Additional quality control samples such as temperature blanks, field duplicates and matrix spike/matrix spike duplicates were also collected.

Field blank quality control samples were collected by transferring PFAS-free water into 15mL polypropylene vials in the field to evaluate the trace level sampling technique used for PFAS sample collection. Additionally, a trip blank quality control sample containing PFAS-free water provided by the LSASD laboratory was stored in the sample cooler containing samples collected for PFAS analysis, to account for PFAS inputs during sample storage and transport. No PFAS target analytes were detected at or above the MRLs for any field quality control samples and were therefore deemed acceptable for the scope of this study (Appendix A).

A temperature blank was placed inside the sample cooler and measured upon arrival to the LSASD laboratory. The temperature blank stored with the field samples submitted to the lab on November 7, 2019 was recorded at 0.6°C. The temperature blank was below the 4.0°C threshold and deemed acceptable by the LSASD laboratory.

A duplicate sample was collected on the furthest downstream station on the Chattooga River (CHR01) and submitted to the LSASD laboratory for analysis of all analytes targeted for this study. The duplicate results for all detected analytes along with the calculated relative percent differences (RPDs) are listed in Table 8.

C5. Conclusions

A total of 7 distinct compounds of PFAS were positively identified in the surface water samples collected from 13 sites located throughout the Chattooga River Watershed. No PFAS compounds were detected at or above the minimum reporting limit (MRL) in the samples collected from headwaters of the Chattooga River (CHR08 and TOC01). The diversity of surface water samples with more than one PFAS compound detected ranged from 4 to 7 distinct compounds. Station TEC01 located on Teloga Creek had the highest ∑PFAS concentrations, as the 3 tributary stations (TEC01, RAC01, and HIC01) in watersheds with active biosolids land application sites (year 2018) had the 3 highest ∑PFAS concentrations across all sites sampled. The composition of PFAS in surface waters was dominated by short-chain PFCAs. The short-chain PFCA and PFOA replacement, PFPeA, was the most abundant PFAS compound detected in the surface waters of the Chattooga River Watershed, followed by PFHxA.

The diversity of PFAS was found to be greater in sediment samples collected from the same 13 sites containing a total of 12 distinct compounds. The diversity of detected PFAS in sediments ranged from 3 to 9 distinct compounds with the highest ∑PFAS observed at CHR02. It should be noted that the second highest ∑PFAS concentrations were detected on Hinton Creek at HIC01, which feeds into the Chattooga River just upstream of station CHR02. In general, sediments were dominated by short-chain PFCAs, especially stations on tributaries with active biosolids land application sites. PFOS was detected at moderate levels in the majority of sediment samples, but only minor detections were observed in surface waters at several sites. Significant composition of short-chain PFCAs present in both the surface waters and sediments would suggest the presence of a local source of short-chain PFCAs and/or their precursors within the Chattooga River Watershed.

Combined concentrations of PFOA and PFOS were detected at the highest relative levels in surface waters at HIC01 (312 ng/L) and TEC01 (200 ng/L). Combined concentrations of PFOA and PFOS were also detected in the following samples: CHR01 (45 ng/L), CHR01(DUP) (71 ng/L), CHR02 (79 ng/L), CHR03 (48 ng/L), CHR04 (75 ng/L), CHR05 (41 ng/L), CHR06 (39 ng/L), and RAC01 (95 ng/L). It should be noted that RAC01 is located just upstream of the Summerville drinking water intake and treatment facility.

Teloga Creek accounted for approximately 56% of the combined PFOA and PFOS mass loading, and 77% of the ∑PFAS mass loading calculated for the next downstream station on the Chattooga River at CHR06 with a flow contribution of approximately 11%. The largest increase in the ∑PFAS mass loading between stations on the main stem was observed moving from CHR07 to CHR06. The ∑PFAS mass loading on the Chattooga River increased as station locations moved from the headwaters at CHR08 to the furthest downstream station at CHR01. Samples were collected during near-base flow conditions aiming to isolate surface water PFAS inputs to groundwater intrusion, dissolution of PFAS adsorbed to sediments, transformation of precursor compounds within the sediment and surface waters, air deposition, and point-source discharges. This study found that the transport of both surface water and sediments contaminated with PFAS from the Chattooga River Watershed present inputs into the receiving waters of Weiss Lake.

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Summary Tables

Table 1: Sampling Site Locations and Descriptions

Station ID	Water Body	Approximate Coordinates (DD.ddddd)		Site Description
		Latitude	Longitude	
CHR01	Chattooga River	34.26407	-85.56006	Chattooga River at Hwy 35 in Gaylesville AL
MIC01	Mill Creek	34.29605	-85.50966	Mill Creek at Hwy 68 near Gaylesville AL
CHR02	Chattooga River	34.33577	-85.44540	Chattooga River at Rte 323 in Chattoogaville GA
HIC01	Hinton Creek	34.33429	-85.43665	Hinton Creek at Rte 323 in Chattoogaville GA
CHR03	Chattooga River	34.40234	-85.39589	Chattooga River at Lyerly Dam Rd in Lyerly GA
CHR04	Chattooga River	34.44481	-85.36251	Chattooga River at Hwy 100 near Summerville GA
RAC01	Raccoon Creek	Redacted	Redacted	Raccoon Creek upstream of Summerville public drinking water intake facility GA
CHR05	Chattooga River	34.51963	-85.30111	Chattooga River at Penn Bridge Rd near Trion GA
CHR06	Chattooga River	34.54538	-85.31830	Chattooga River upstream of low-head dam near Trion GA
TEC01	Teloga Creek	34.54343	-85.38539	Teloga Creek at Hwy 327 in Broomtown Valley GA
CHR07	Chattooga River	34.66676	-85.30003	Chattooga River at Foster Mill Dr near LaFayette GA
CHR08	Chattooga River	34.70729	-85.28702	Chattooga River near Culberson Ave in LaFayette GA
TOC01	Town Creek	34.71430	-85.26781	Town Creek at Round Pond Rd near LaFayette GA

Table 2: *In-Situ* Water Quality Parameters

***In-Situ* Water Quality Parameter Measurement Uncertainty**			
Parameter	**Units**	**Measurement Technology**	**Measurement Uncertainty**
pH	SU	Glass electrode	± 0.2 SU
Dissolved Oxygen	mg/L	Luminescent DO probe	± 0.2 mg/L
Temperature	°C	LDO Thermistor	± 0.2 °C
Specific Conductance	µS/cm	Nickel electrode cell	± 0.5% of reading
Turbidity	FNU	Optical Probe	± 5% of reading

Table 3: Sample Collection, Preservation and Holding Times

Analyses	Media	Container	Preservation	Holding Time
PFAS	Surface Water	2 x 15mL Polypropylene Vial	Ice (≤ 4°C)	42 days
	Sediment	50mL Polypropylene	Ice (≤ 4°C)	42 days

Table 4: **PFAS Target Analyte List**

Region IV Laboratory Per - and Polyfluoroalkyl Substances (PFAS) Target Analyte List Method Detection Limits (MDLs) & Minimum Reporting Limits (MRLs)				
Analyte[1]	**Water[2] µg/L (ppb)**		**Soil/Sediment[3] µg/kg (ppb)**	
	MDL	**MRL**	**MDL**	**MRL**
Perfluorotridecanoic acid (PFTrDA)	0.039	0.040	0.040	0.100
Perfluorododecanoic acid (PFDoA)	0.029	0.040	0.040	0.100
Perfluoroundecanoic acid (PFUDA)	0.021	0.040	0.040	0.100
Perfluorodecanoic acid (PFDA)	0.096	0.160	0.040	0.100
Perfluorononanoic acid (PFNA)	0.016	0.040	0.040	0.100
Perfluorooctanoic acid (PFOA)	0.026	0.040	0.040	0.100
Perfluoroheptanoic acid (PFHpA)	0.014	0.040	0.040	0.100
Perfluorohexanoic acid (PFHxA)	0.031	0.040	0.040	0.100
Perfluoropentanoic acid (PFPeA)	0.018	0.040	0.040	0.100
Perfluorobutyric acid (PFBA)	0.022	0.040	0.040	0.100
Perfluorodecanesulfonate (PFDS)	0.032	0.039	0.040	0.096
Perfluorononanesulfonate (PFNS)	0.015	0.038	0.040	0.096
Perfluorooctanesulfonate (PFOS)	0.017	0.037	0.040	0.092
Perfluoroheptanesulfonate (PFHpS)	0.017	0.038	0.040	0.095
Perfluorohexanesulfonate (PFHxS)	0.017	0.036	0.040	0.091
Perfluoropentanesulfonate (PFPeS)	0.013	0.038	0.040	0.094
Perfluorobutanesulfonate (PFBS)	0.023	0.035	0.040	0.088
Perfluorooctanesulfonamide (FOSA)	0.031	0.040	0.040	0.100
Fluorotelomer sulfonate 8:02 (8:2 FTS)	0.034	0.038	0.040	0.096
Fluorotelomer sulfonate 6:02 (6:2 FTS)	0.029	0.038	0.040	0.095
Fluorotelomer sulfonate 4:02 (4:2 FTS)	0.021	0.037	0.040	0.094
N-(Heptadecafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	0.110	0.160	0.040	0.100
Hexafluoropropylene oxide–dimer acid (HFPO-DA)	0.026	0.040	0.040	0.100

[1]PFAS analytes for both surface water and sediment/soil matrices are analyzed via the method outlined in LSBPROC-800-R1.

[2]PFAS analytes in surface water are analyzed using ASTM standard D7979-17.

[3]PFAS analytes in solids (e.g. soil, sediment, and waste) are analyzed using ASTM standard D7968-17a.

Table 5: Detected PFAS in Surface Water & Mass Loading

Analyte	Units	Sampling Stations													
		Chattooga River - Main Stem									Inflowing Tributaries				
		CHR01	CHR01 (DUP)	CHR02	CHR03	CHR04	CHR05	CHR06	CHR07	CHR08	HIC01	MIC01	RAC01	TEC01	TOC01
PFBA	ng/L	40	40 J,Q-2	66	48	35 J,Q-2	56	56	U	U	290	44	140	490	U
PFBS		68	72	86	83	85	93	98	U	U	U	U	U	620	U
PFHpA		26 J,Q-2	26 J,Q-2	27 J,Q-2	29 J,Q-2	24 J,Q-2	23 J,Q-2	22 J,Q-2	U	U	150	23 J,Q-2	40	130	U
PFHxA		200	200	210	180	160	170	180	U	U	1000	250	420	1300	U
PFOA		45	52	52	48	42	41	39 J,Q-2	U	U	270	U	53	200	U
PFOS		U	19 J,Q-2	27 J,Q-2	U	33 J,Q-2	U	U	U	U	42	U	42	U	U
PFPeA		390	390	450	410	370	400	450	19 J,Q-2	U	1700	410	900	3100	U
PFOA+PFOS		45	71	79	48	75	41	39	U	U	312	U	95	200	U
Total		769	799	918	798	749	783	845	19	U	3452	727	1595	5840	U
Discharge	cfs	367	367	315	286	245	227	188	26.6	1.75	5.42	76.0	27.7	20.9	17.3
Mass Loading															
PFBA	g/day	36	36	51	34	21	31	26	NA	NA	4	8	9	25	NA
PFBS		61	65	66	58	51	52	45	NA	NA	NA	NA	NA	32	NA
PFHpA		23	23	21	20	14	13	10	NA	NA	2	4	3	7	NA
PFHxA		179	179	162	126	96	94	83	NA	NA	13	46	28	66	NA
PFOA		40	47	40	34	25	23	18	NA	NA	4	NA	4	10	NA
PFOS		NA	17	21	NA	20	NA	NA	NA	NA	1	NA	3	NA	NA
PFPeA		350	350	347	287	221	222	207	1	NA	23	76	61	159	NA
PFOA+PFOS		40	64	61	34	45	23	18	NA	NA	4	NA	6	10	NA
Total		690	717	707	559	448	435	389	1.24	NA	45.8	135	108	299	NA

Qualifier:	Description:
U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.

Table 6: Detected PFAS in Sediment

Analyte	Units	Sampling Stations												
		Chattooga River - Main Stem									Inflowing Tributaries			
		CHR01	CHR01 (DUP)	CHR02	CHR03	CHR04	CHR05	CHR06	CHR07	CHR08	HIC01	MIC01	RAC01	TEC01	TOC01
PFBA	ng/kg (dry)	U	U	U	U	U	U	U	U	U	220	U	U	200	U
PFBS		U	U	330	U	U	U	U	U	U	U	U	U	190	U
PFDA		U	U	300	91 J,Q-2	80 J,Q-2	U	91 J,Q-2	83 J,Q-2	300	U	U	U	U	U
PFDoA		U	U	640	190	73 J,Q-2	U	63 J,Q-2	60 J,Q-2	120 J,Q-2	U	U	U	U	U
PFHpA		U	U	U	U	U	U	U	U	87 J,Q-2	100 J,Q-2	U	U	73 J,Q-2	U
PFHxA		82 J,Q-2	65 J,Q-2	250	110 J,Q-2	200	160	84 J,Q-2	U	110 J,Q-2	440	110 J,Q-2	140	450	U
PFNA		U	U	U	U	55 J,Q-2	U	U	U	U	77 J,Q-2	U	U	U	U
PFOA		U	U	210	98 J,Q-2	160	140	53 J,Q-2	64 J,Q-2	220	530	51 J,Q-2	69 J,Q-2	200	74 J,Q-2,QM-1
PFOS		100 J,Q-2	92 J,Q-2	1700	650	650	400	300	190	300	330	130	300	200	200
PFPeA		170	150	470	210	510	370	200	66 J,Q-2	180	830	230	330	1100	87 J,Q-2
PFTrDA		U	U	180	72 J,Q-2	U	U	U	U	51 J,Q-2	U	U	U	U	U
PFUdA		U	U	190	U	U	U	U	U	180	U	U	U	U	U
PFOA+PFOS		100	92	1910	748	810	540	353	254	520	860	181	369	400	274
Total		352	307	4270	1421	1728	1070	791	463	1548	2527	521	839	2413	361
% Solids	%	78	75	52	74	75	73	71	73	72	81	74	78	75	78

Qualifier:	Description:
U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
QM-1	Matrix Spike Recovery less than method control limits.

Table 7: *In-Situ* Water Quality Measurements

Station ID	Date (mm/d/yyyy)	Time (hh:mm)	Temperature (°C)	pH (S.U.)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Turbidity (FNU)
CHR01	11/6/2019	14:47	13.0	7.65	253.8	9.33	16.81
CHR02	11/6/2019	12:29	13.0	7.76	293.7	9.72	7.81
CHR03	11/6/2019	10:20	12.7	7.73	303.2	9.62	7.75
CHR04	11/6/2019	8:47	12.2	7.71	313.6	9.74	5.75
CHR05	11/5/2019	16:25	13.7	7.82	299.8	10.18	5.49
CHR06	11/5/2019	13:51	12.3	7.58	213.2	9.11	7.85
CHR07	11/4/2019	16:35	13.9	7.70	220.1	9.57	4.50
CHR08	11/4/2019	15:35	14.9	7.74	329.6	8.94	1.93
HIC01	11/6/2019	11:15	13.5	7.78	270.8	9.62	2.46
MIC01	11/6/2019	13:40	13.3	7.81	224.5	10.07	5.76
RAC01	11/5/2019	11:28	12.9	7.56	237.8	8.71	5.85
TEC01	11/5/2019	9:25	12.8	7.60	240.8	8.92	3.12
TOC01	11/4/2019	14:45	15.5	7.69	153.0	9.38	7.43

**All sample times recorded in Eastern Standard Time (EST).

Table 8: Relative Percent Difference for CHR01 Duplicate

Analyte	Units	CHR01	CHR01 (DUP)	RPD (%)
Surface Water				
PFBA	ng/L	40	40 J,Q-2	0.0
PFBS		68	72	5.7
PFHpA		26 J,Q-2	26 J,Q-2	0.0
PFHxA		200	200	0.0
PFOA		45	52	14.4
PFOS		U	19 J,Q-2	200.0
PFPeA		390	390	0.0
Sediment				
PFBA	ng/kg (dry)	U	U	0.0
PFBS		U	U	0.0
PFDA		U	U	0.0
PFDoA		U	U	0.0
PFHpA		U	U	0.0
PFHxA		82 J,Q-2	65 J,Q-2	23.1
PFNA		U	U	0.0
PFOA		U	U	0.0
PFOS		100 J,Q-2	92 J,Q-2	8.3
PFPeA		170	150	12.5
PFTrDA		U	U	0.0
PFUdA		U	U	0.0

Qualifier:	**Description:**
U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.

Table 9: PFAS Classifications and Functional Groups

Carbon Chain Length	PFAS Analyte	Class	Functional Group
14	PFTeDA	Long Chain	PFCAs
13	PFTrDA		
12	PFDoA		
11	PFUDA		
10	PFDA		
9	PFNA		
8	PFOA		
7	PFHpA	Short Chain	
6	PFHxA		
5	PFPeA		
4	PFBA		
10	PFDS	Long Chain	PFSAs
9	PFNS		
8	PFOS		
7	PFHpS		
6	PFHxS		
5	PFPeS	Short Chain	
4	PFBS		
10	8:2 FTS	Precursor	Fluorotelomers
8	6:2 FTS		
6	4:2 FTS		
10	N-EtFOSAA	Precursor	Sulfonamides
9	N-MeFOSAA		
8	FOSA		

*Based on classifications defined in ITRC (2018).

Summary Figures

Figure 1: Site Map

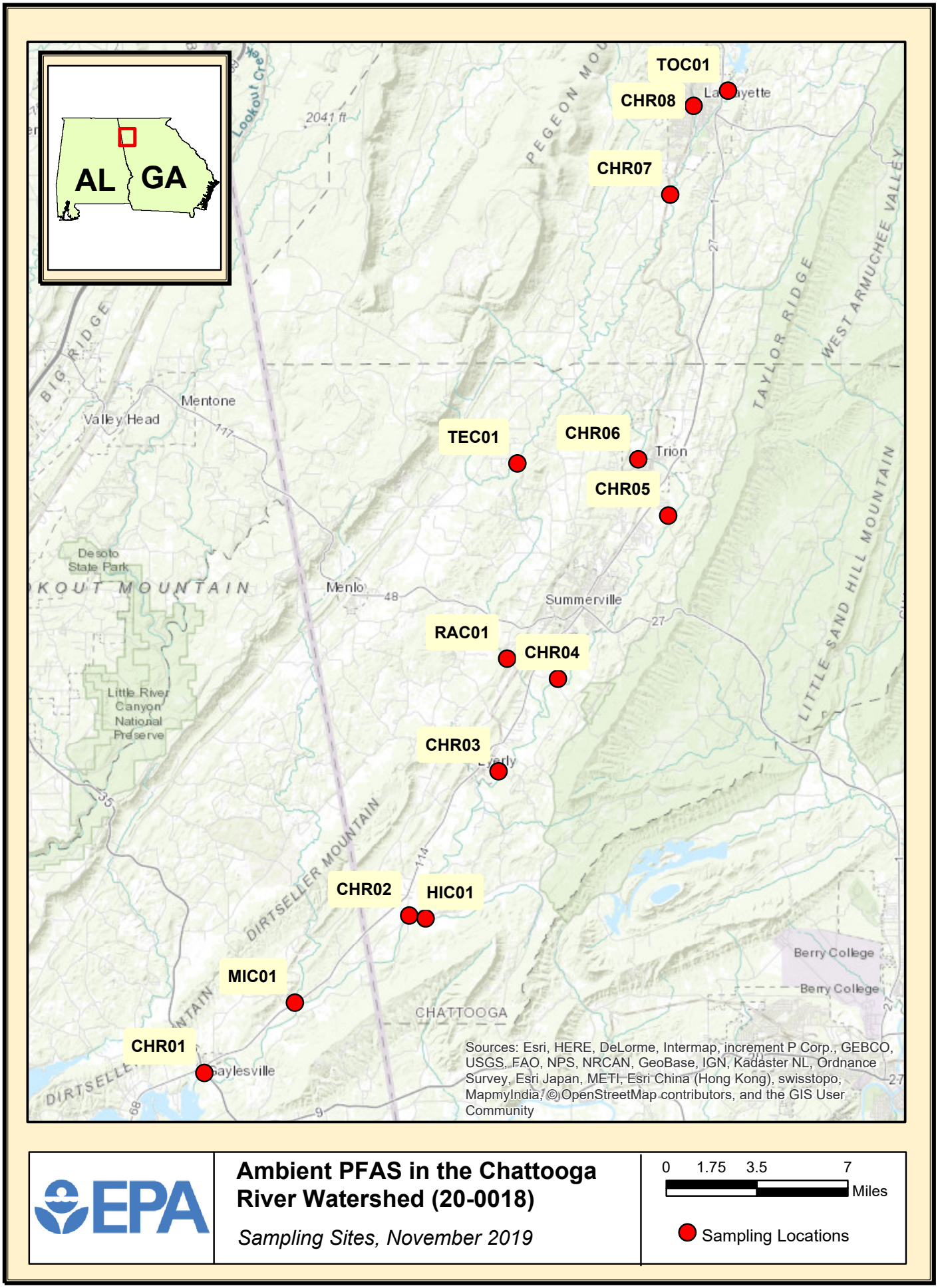
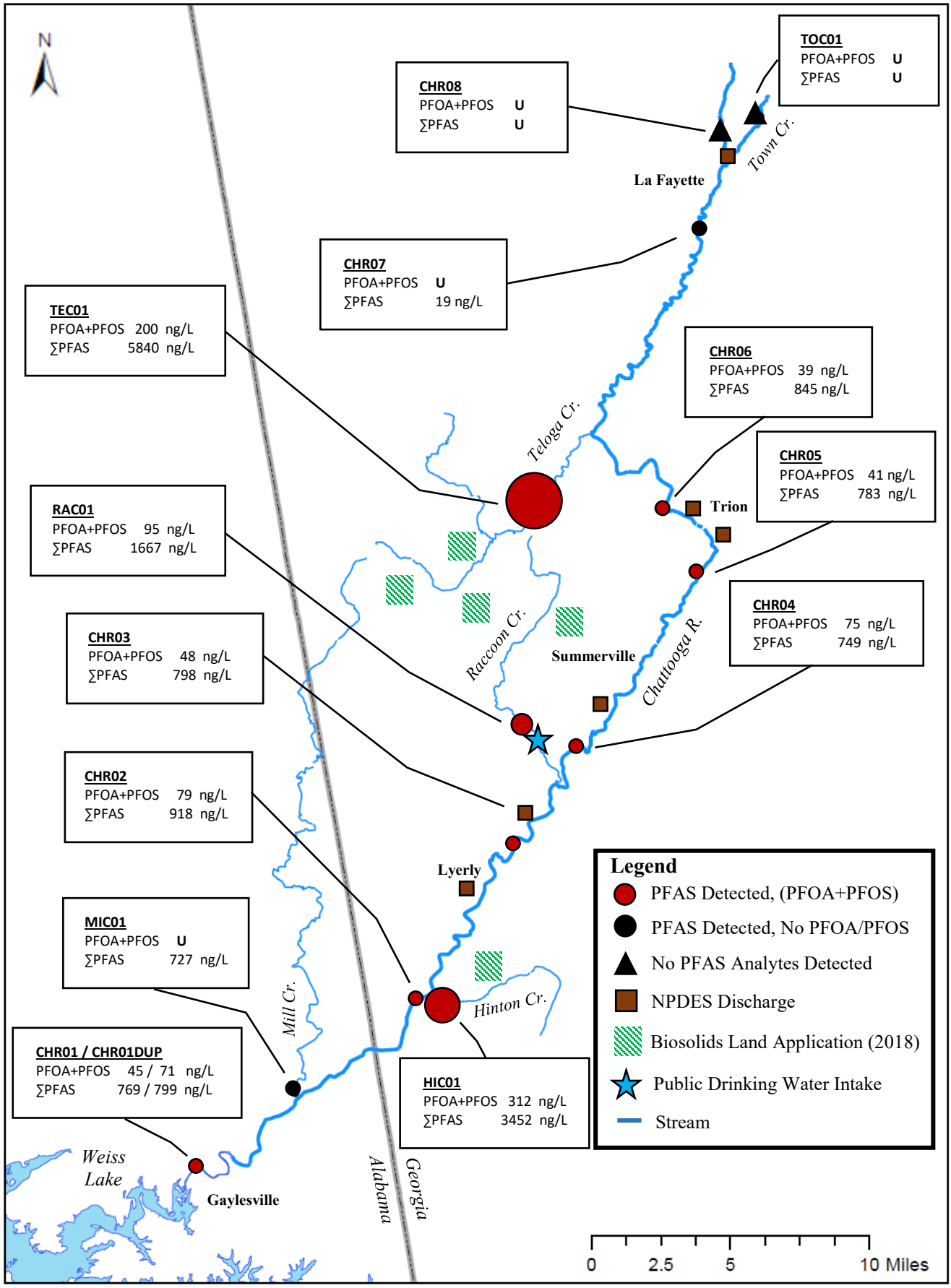
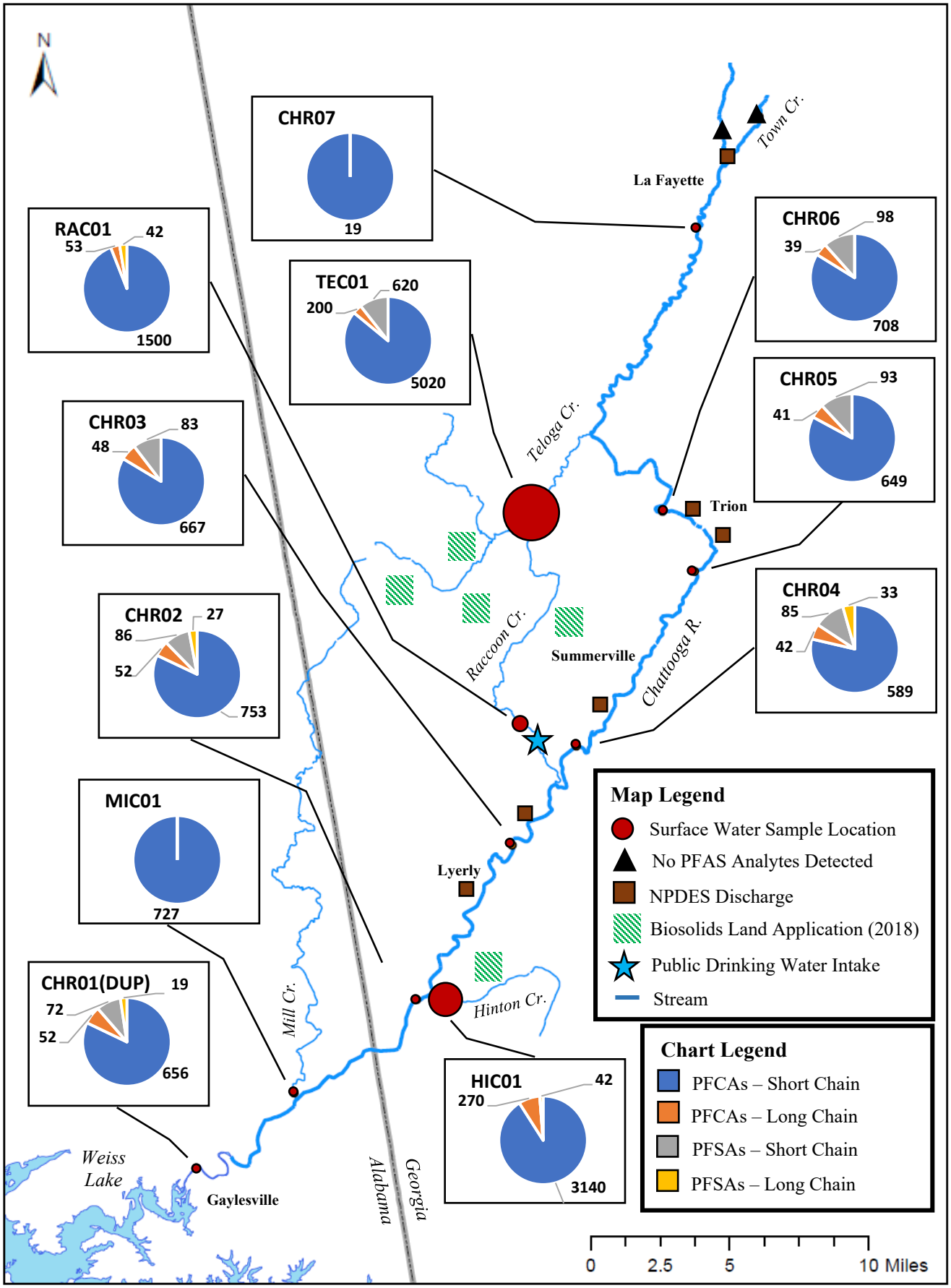


Figure 2: Overview of PFAS in Surface Water



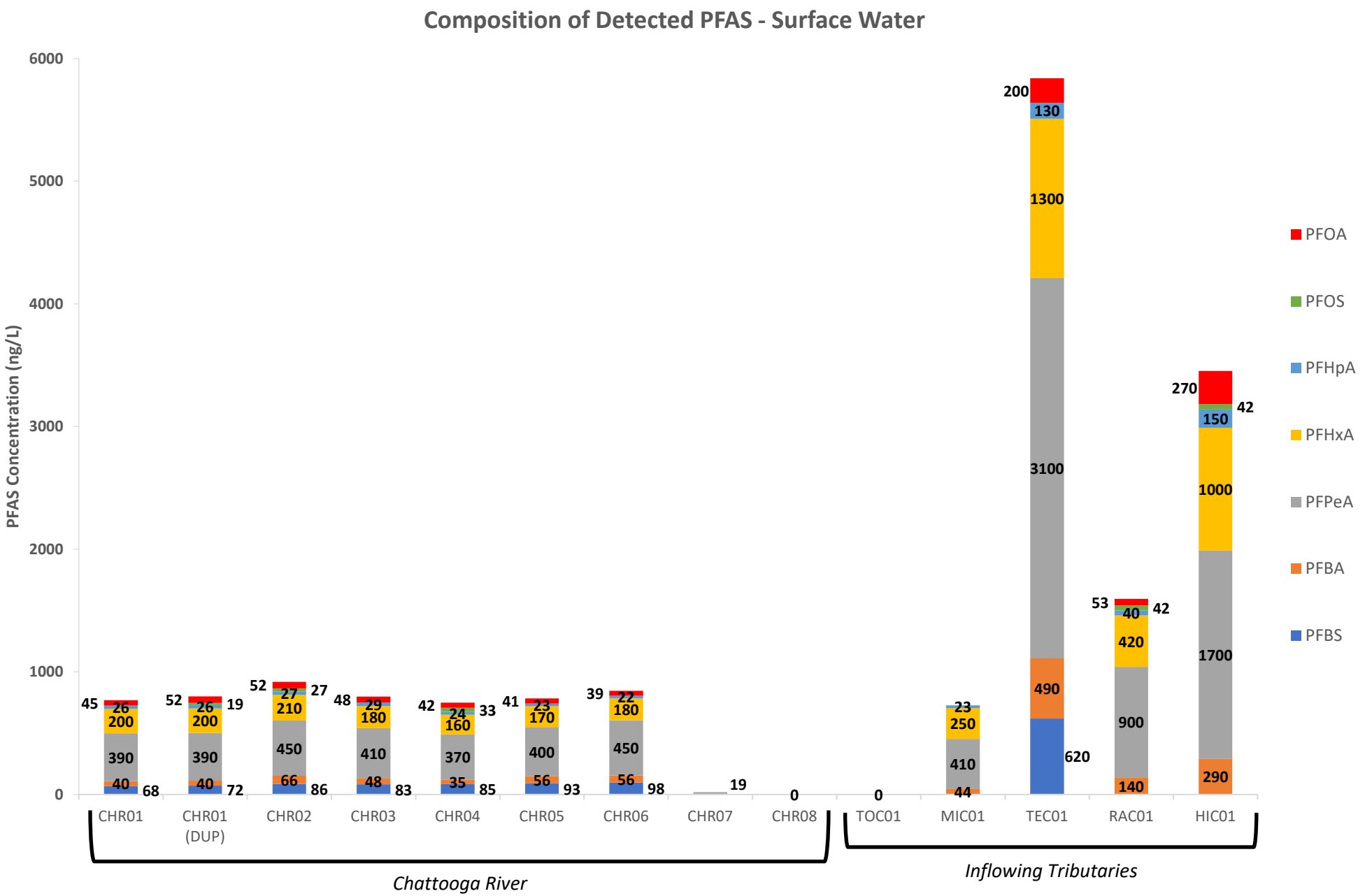
Concentrations of combined PFOA + PFOS and total PFAS are shown in the figure above. Station icons are scaled with respect to total PFAS.

Figure 3: Composition and Distribution of PFAS in Surface Water



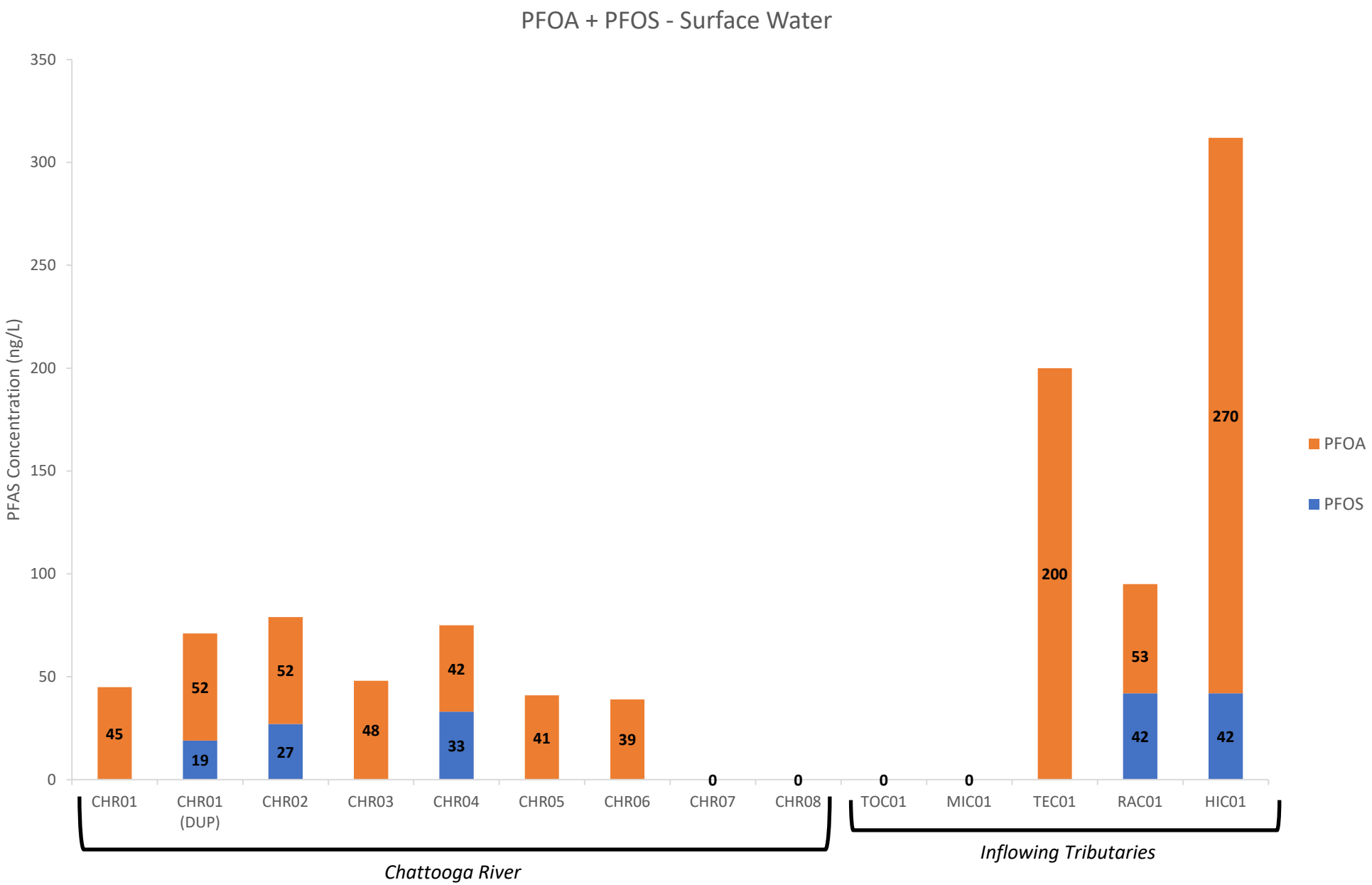
The composition and distribution of PFAS detected in surface water samples are shown in the figure above. Sample location icons are scaled with respect to the concentration of total PFAS detected in surface water samples. Surface water samples were primarily composed of short-chain PFCAs. Functional group and classification of PFAS target analytes are defined in Table 9.

Figure 4: Composition of Detected PFAS - Surface Water



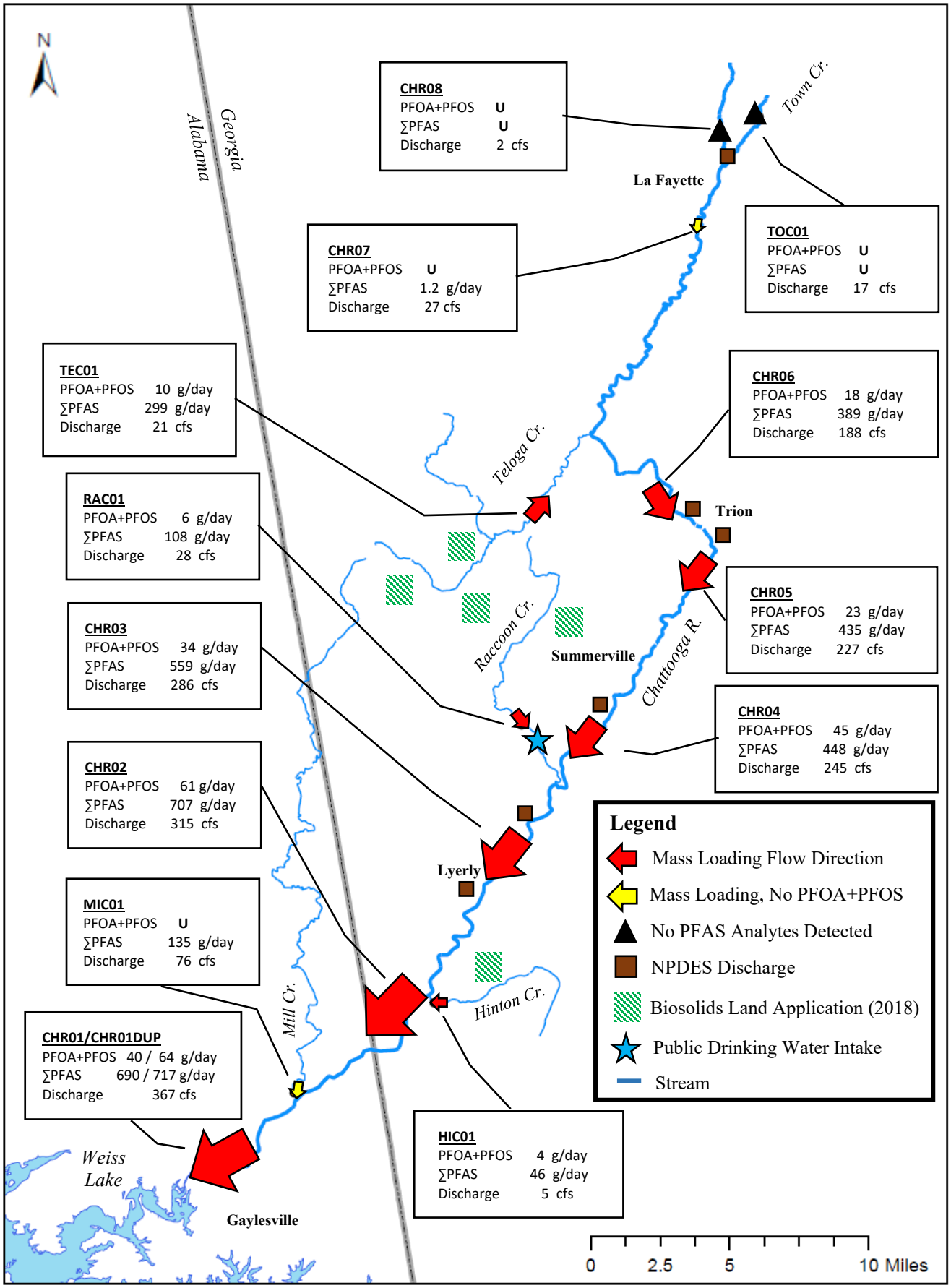
The composition and concentrations of PFAS detected in surface water samples are shown above. The diversity of compounds detected was similar throughout the watershed.

Figure 5: PFOA and PFOS in Surface Water



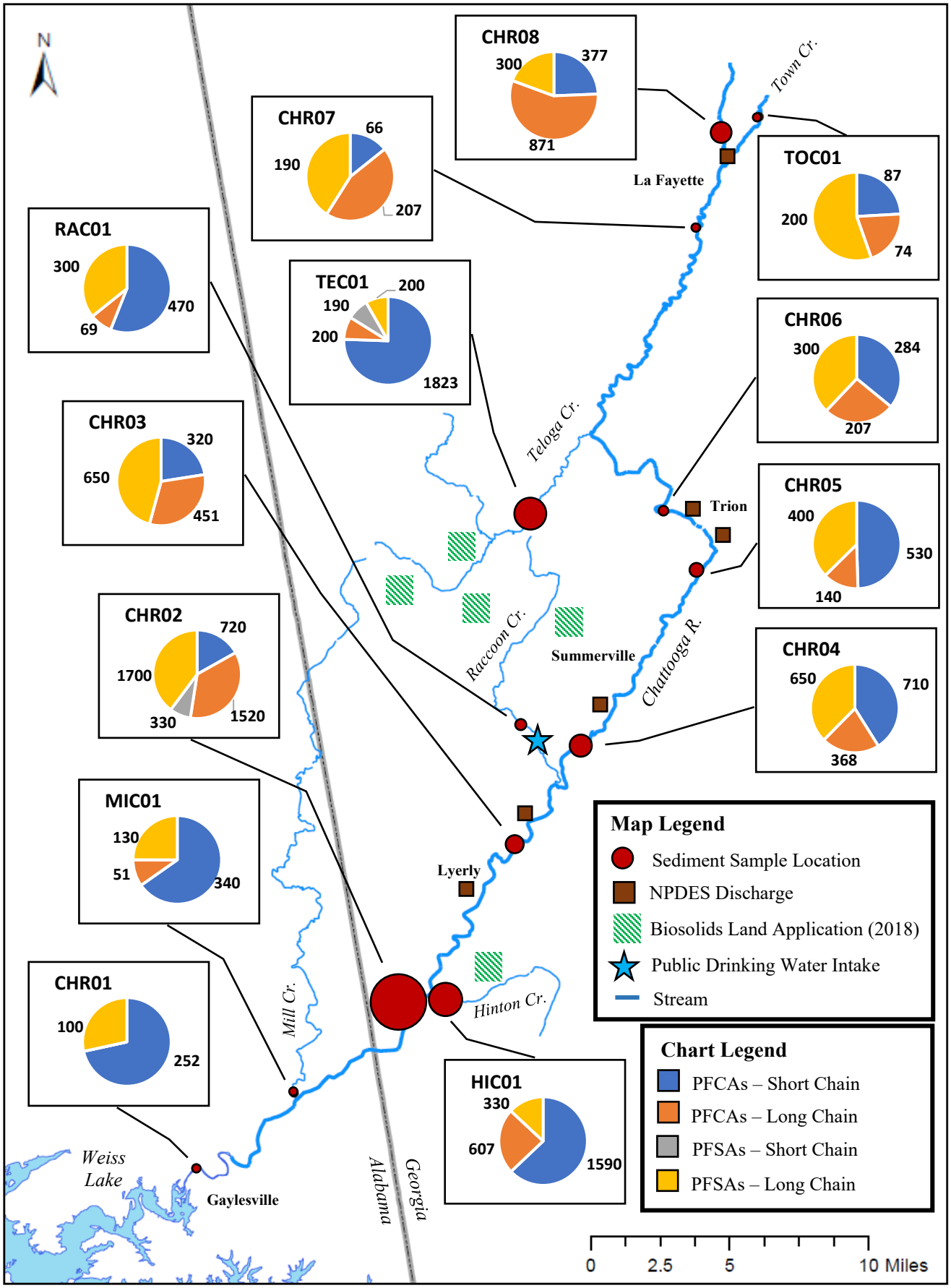
The combined concentrations of PFOA and PFOS in surface water are shown in the figure above.

Figure 6: Mass Loading of PFAS in Surface Water



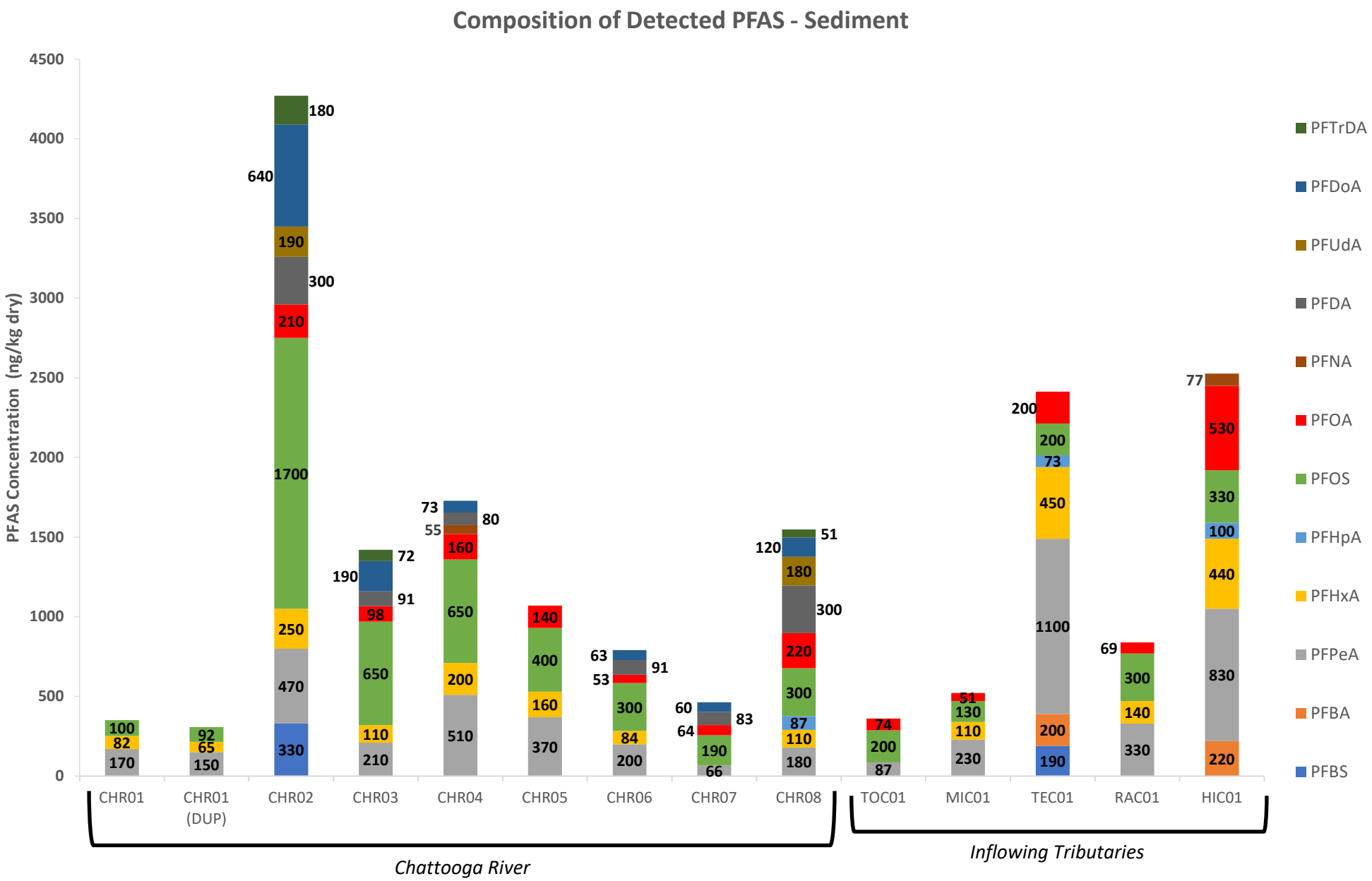
Instantaneous mass loading of combined PFOA + PFOS and total PFAS are shown in the figure above. Mass loading flow directions are scaled with respect to total PFAS loading rates. Mass loading rates of total PFAS increased along the Chattooga River moving downstream with significant inputs from tributaries containing known biosolids application sites.

Figure 7: Composition and Distribution of PFAS in Sediment



The composition and distribution of PFAS detected in sediment samples are shown in the figure above. Sample location icons are scaled with respect to the concentration of total PFAS detected in sediment samples. PFOS was detected in all samples collected throughout the watershed. With the exception of TOC01, sediment samples were generally comprised of PFCAs. Functional group and classification of PFAS target analytes are defined in Table 9.

Figure 8: Composition of Detected PFAS - Sediment



The composition and concentrations of PFAS detected in sediment samples is shown in the figure above. Various concentrations and compositions of PFAS were detected in all sediment samples collected throughout the watershed. Both composition and and concentration of PFAS in sediment is a factor of physiochemical characteristics such as the presence of organic carbon.

Appendix A:
Surface Water PFAS Analytical Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 20-0018
Project: 20-0018, Ambient PFAS in the Chattooga River - Reported by Diana Burdette

December 11, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 20-0018, Ambient PFAS in the Chattooga River

FROM: Diana Burdette
OCS Analyst

THRU: Jeffrey Hendel, Chief
LSB Organic Chemistry Section

TO: Greg White

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Semi Volatile Organics (SVOA)		
PFAS	ASBPROC-800PFAS (Water)	

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

SAMPLES INCLUDED IN THIS REPORT

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
20-0018-field-blk-1-1119	E194503-01	Field Blank	11/4/19 15:10	11/7/19 13:53
20-0018-field-blk-2-1119	E194503-02	Field Blank	11/6/19 15:15	11/7/19 13:53
20-0018-trip-blk-1-1119	E194503-03	Trip Blank - Water	11/4/19 15:05	11/7/19 13:53
20-0018-CHR01-1119-SW	E194503-05	Surface Water	11/6/19 14:30	11/7/19 13:53
20-0018-CHR01-DUP-1119-SW	E194503-07	Surface Water	11/6/19 14:35	11/7/19 13:53
20-0018-CHR02-1119-SW	E194503-09	Surface Water	11/6/19 11:55	11/7/19 13:53
20-0018-CHR03-1119-SW	E194503-11	Surface Water	11/6/19 10:05	11/7/19 13:53
20-0018-CHR04-1119-SW	E194503-13	Surface Water	11/6/19 09:00	11/7/19 13:53
20-0018-CHR05-1119-SW	E194503-15	Surface Water	11/5/19 16:10	11/7/19 13:53
20-0018-CHR06-1119-SW	E194503-17	Surface Water	11/5/19 13:40	11/7/19 13:53
20-0018-CHR07-1119-SW	E194503-19	Surface Water	11/4/19 16:20	11/7/19 13:53
20-0018-CHR08-1119-SW	E194503-21	Surface Water	11/4/19 15:30	11/7/19 13:53
20-0018-HIC01-1119-SW	E194503-23	Surface Water	11/6/19 11:10	11/7/19 13:53
20-0018-MIC01-1119-SW	E194503-25	Surface Water	11/6/19 13:25	11/7/19 13:53
20-0018-RAC01-1119-SW	E194503-27	Surface Water	11/5/19 11:20	11/7/19 13:53
20-0018-TEC01-1119-SW	E194503-29	Surface Water	11/5/19 09:05	11/7/19 13:53
20-0018-TOC01-1119-SW	E194503-31	Surface Water	11/4/19 14:30	11/7/19 13:53

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-field-blk-1-1119 **Lab ID:** E194503-01

Station ID: **Matrix:** Field Blank

Date Collected: 11/4/19 15:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
375-22-4	PFBA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
375-73-5	PFBS	36	U	ng/L	36	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
375-85-9	PFHpA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
307-24-4	PFHxA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
2706-90-3	PFPeA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-field-blk-1-1119 **Lab ID:** E194503-01

Station ID: **Matrix:** Field Blank

Date Collected: 11/4/19 15:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-field-blk-2-1119 **Lab ID:** E194503-02

Station ID: **Matrix:** Field Blank

Date Collected: 11/6/19 15:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
375-22-4	PFBA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
375-85-9	PFHpA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
307-24-4	PFHxA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
2706-90-3	PFPeA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-field-blk-2-1119 **Lab ID:** E194503-02

Station ID: **Matrix:** Field Blank

Date Collected: 11/6/19 15:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-trip-blk-1-1119 **Lab ID:** E194503-03

Station ID: **Matrix:** Trip Blank - Water

Date Collected: 11/4/19 15:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
375-22-4	PFBA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
375-85-9	PFHpA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
307-24-4	PFHxA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
2706-90-3	PFPeA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-trip-blk-1-1119 **Lab ID:** E194503-03

Station ID: **Matrix:** Trip Blank - Water

Date Collected: 11/4/19 15:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 19:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-1119-SW **Lab ID:** E194503-05

Station ID: CHR01 **Matrix:** Surface Water

Date Collected: 11/6/19 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
375-22-4	PFBA	40		ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
375-73-5	PFBS	68		ng/L	35	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
375-85-9	PFHpA	26	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
307-24-4	PFHxA	200		ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
335-67-1	PFOA	45		ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
2706-90-3	PFPeA	390		ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-1119-SW **Lab ID:** E194503-05

Station ID: CHR01 **Matrix:** Surface Water

Date Collected: 11/6/19 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-DUP-1119-SW **Lab ID:** E194503-07

Station ID: CHR01 **Matrix:** Surface Water

Date Collected: 11/6/19 14:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
754-91-6	FOSA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
375-22-4	PFBA	40	J, Q-2	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
375-73-5	PFBS	72		ng/L	36	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
307-55-1	PFDoA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
375-85-9	PFHpA	26	J, Q-2	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
375-92-8	PFHpS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
307-24-4	PFHxA	200		ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
375-95-1	PFNA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
335-67-1	PFOA	52		ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
1763-23-1	PFOS	19	J, Q-2	ng/L	38	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
2706-90-3	PFPeA	390		ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-DUP-1119-SW **Lab ID:** E194503-07

Station ID: CHR01 **Matrix:** Surface Water

Date Collected: 11/6/19 14:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS
2058-94-8	PFUdA	41	U	ng/L	41	11/18/19 10:18	11/19/19 20:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR02-1119-SW **Lab ID:** E194503-09

Station ID: CHR02 **Matrix:** Surface Water

Date Collected: 11/6/19 11:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
375-22-4	PFBA	66		ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
375-73-5	PFBS	86		ng/L	35	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
375-85-9	PFHpA	27	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
307-24-4	PFHxA	210		ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
335-67-1	PFOA	52		ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
1763-23-1	PFOS	27	J, Q-2	ng/L	37	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
2706-90-3	PFPeA	450		ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR02-1119-SW **Lab ID:** E194503-09

Station ID: CHR02 **Matrix:** Surface Water

Date Collected: 11/6/19 11:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 20:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR03-1119-SW **Lab ID:** E194503-11

Station ID: CHR03 **Matrix:** Surface Water

Date Collected: 11/6/19 10:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
375-22-4	PFBA	48		ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
375-73-5	PFBS	83		ng/L	35	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
375-85-9	PFHpA	29	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
307-24-4	PFHxA	180		ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
335-67-1	PFOA	48		ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
2706-90-3	PFPeA	410		ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR03-1119-SW **Lab ID:** E194503-11

Station ID: CHR03 **Matrix:** Surface Water

Date Collected: 11/6/19 10:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR04-1119-SW **Lab ID:** E194503-13

Station ID: CHR04 **Matrix:** Surface Water

Date Collected: 11/6/19 9:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
375-22-4	PFBA	35	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
375-73-5	PFBS	85		ng/L	36	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
375-85-9	PFHpA	24	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
307-24-4	PFHxA	160		ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
335-67-1	PFOA	42		ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
1763-23-1	PFOS	33	J, Q-2	ng/L	37	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
2706-90-3	PFPeA	370		ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR04-1119-SW **Lab ID:** E194503-13

Station ID: CHR04 **Matrix:** Surface Water

Date Collected: 11/6/19 9:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR05-1119-SW **Lab ID:** E194503-15

Station ID: CHR05 **Matrix:** Surface Water

Date Collected: 11/5/19 16:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
375-22-4	PFBA	56		ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
375-73-5	PFBS	93		ng/L	35	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
375-85-9	PFHpA	23	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
307-24-4	PFHxA	170		ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
335-67-1	PFOA	41		ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
2706-90-3	PFPeA	400		ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR05-1119-SW **Lab ID:** E194503-15

Station ID: CHR05 **Matrix:** Surface Water

Date Collected: 11/5/19 16:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 21:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR06-1119-SW **Lab ID:** E194503-17

Station ID: CHR06 **Matrix:** Surface Water

Date Collected: 11/5/19 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
375-22-4	PFBA	56		ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
375-73-5	PFBS	98		ng/L	36	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
375-85-9	PFHpA	22	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
307-24-4	PFHxA	180		ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
335-67-1	PFOA	39	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
2706-90-3	PFPeA	450		ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR06-1119-SW **Lab ID:** E194503-17

Station ID: CHR06 **Matrix:** Surface Water

Date Collected: 11/5/19 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR07-1119-SW **Lab ID:** E194503-19

Station ID: CHR07 **Matrix:** Surface Water

Date Collected: 11/4/19 16:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
375-22-4	PFBA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
375-73-5	PFBS	36	U	ng/L	36	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
375-85-9	PFHpA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
307-24-4	PFHxA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
2706-90-3	PFPeA	19	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR07-1119-SW **Lab ID:** E194503-19

Station ID: CHR07 **Matrix:** Surface Water

Date Collected: 11/4/19 16:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR08-1119-SW **Lab ID:** E194503-21

Station ID: CHR08 **Matrix:** Surface Water

Date Collected: 11/4/19 15:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
375-22-4	PFBA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
375-85-9	PFHpA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
307-24-4	PFHxA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
2706-90-3	PFPeA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR08-1119-SW **Lab ID:** E194503-21

Station ID: CHR08 **Matrix:** Surface Water

Date Collected: 11/4/19 15:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 22:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-HIC01-1119-SW **Lab ID:** E194503-23

Station ID: HIC01 **Matrix:** Surface Water

Date Collected: 11/6/19 11:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
375-22-4	PFBA	290		ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
375-85-9	PFHpA	150		ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
307-24-4	PFHxA	1000		ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
335-67-1	PFOA	270		ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
1763-23-1	PFOS	42		ng/L	37	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
2706-90-3	PFPeA	1700		ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-HIC01-1119-SW **Lab ID:** E194503-23

Station ID: HIC01 **Matrix:** Surface Water

Date Collected: 11/6/19 11:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-MIC01-1119-SW **Lab ID:** E194503-25

Station ID: MIC01 **Matrix:** Surface Water

Date Collected: 11/6/19 13:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
375-22-4	PFBA	44		ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
375-85-9	PFHpA	23	J, Q-2	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
307-24-4	PFHxA	250		ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
335-67-1	PFOA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
2706-90-3	PFPeA	410		ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-MIC01-1119-SW **Lab ID:** E194503-25

Station ID: MIC01 **Matrix:** Surface Water

Date Collected: 11/6/19 13:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/19/19 23:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-RAC01-1119-SW **Lab ID:** E194503-27

Station ID: RAC01 **Matrix:** Surface Water

Date Collected: 11/5/19 11:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
27619-97-2	6:2FTS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
754-91-6	FOSA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
13252-13-6	HFPO-DA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
375-22-4	PFBA	140		ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
307-55-1	PFDoA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
375-85-9	PFHpA	40		ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
375-92-8	PFHpS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
307-24-4	PFHxA	420		ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
375-95-1	PFNA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
335-67-1	PFOA	53		ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
1763-23-1	PFOS	42		ng/L	36	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
2706-90-3	PFPeA	900		ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-RAC01-1119-SW **Lab ID:** E194503-27

Station ID: RAC01 **Matrix:** Surface Water

Date Collected: 11/5/19 11:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
72629-94-8	PFTrDA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS
2058-94-8	PFUdA	39	U	ng/L	39	11/18/19 10:18	11/19/19 23:58	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TEC01-1119-SW **Lab ID:** E194503-29

Station ID: TEC01 **Matrix:** Surface Water

Date Collected: 11/5/19 9:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
27619-97-2	6:2FTS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
39108-34-4	8:2FTS	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
754-91-6	FOSA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
13252-13-6	HFPO-DA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
375-22-4	PFBA	490		ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
375-73-5	PFBS	620		ng/L	36	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
307-55-1	PFDoA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
335-77-3	PFDS	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
375-85-9	PFHpA	130		ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
375-92-8	PFHpS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
307-24-4	PFHxA	1300		ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
355-46-4	PFHxS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
375-95-1	PFNA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
68259-12-1	PFNS	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
335-67-1	PFOA	200		ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
1763-23-1	PFOS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
2706-90-3	PFPeA	3100		ng/L	400	11/18/19 10:18	11/21/19 11:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TEC01-1119-SW **Lab ID:** E194503-29

Station ID: TEC01 **Matrix:** Surface Water

Date Collected: 11/5/19 9:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
72629-94-8	PFTrDA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS
2058-94-8	PFUdA	40	U	ng/L	40	11/18/19 10:18	11/20/19 0:18	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TOC01-1119-SW **Lab ID:** E194503-31

Station ID: TOC01 **Matrix:** Surface Water

Date Collected: 11/4/19 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
27619-97-2	6:2FTS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
39108-34-4	8:2FTS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
754-91-6	FOSA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
13252-13-6	HFPO-DA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	160	U	ng/L	160	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
375-22-4	PFBA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
375-73-5	PFBS	35	U	ng/L	35	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
335-76-2	PFDA	160	U	ng/L	160	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
307-55-1	PFDoA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
335-77-3	PFDS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
375-85-9	PFHpA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
375-92-8	PFHpS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
307-24-4	PFHxA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
355-46-4	PFHxS	36	U	ng/L	36	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
375-95-1	PFNA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
68259-12-1	PFNS	38	U	ng/L	38	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
335-67-1	PFOA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
1763-23-1	PFOS	36	U	ng/L	36	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
2706-90-3	PFPeA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TOC01-1119-SW **Lab ID:** E194503-31

Station ID: TOC01 **Matrix:** Surface Water

Date Collected: 11/4/19 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	37	U	ng/L	37	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
72629-94-8	PFTrDA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS
2058-94-8	PFUdA	39	U	ng/L	39	11/18/19 10:18	11/20/19 0:38	ASBPROC-800PFAS

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911036 - S PFC										
Blank (1911036-BLK1)				Prepared: 11/18/19 Analyzed: 11/19/19						
ASBPROC-800PFAS										
4:2FTS	U	37	ng/L							U
6:2FTS	U	38	"							U
8:2FTS	U	38	"							U
FOSA	U	40	"							U
HFPO-DA	U	40	"							U
N-MeFOSAA	U	160	"							U
PFBA	U	40	"							U
PFBS	U	35	"							U
PFDA	U	160	"							U
PFDoA	U	40	"							U
PFDS	U	39	"							U
PFHpA	U	40	"							U
PFHpS	U	38	"							U
PFHxA	U	40	"							U
PFHxS	U	36	"							U
PFNA	U	40	"							U
PFNS	U	38	"							U
PFOA	U	40	"							U
PFOS	U	37	"							U
PFPeA	U	40	"							U
PFPeS	U	38	"							U
PFTrDA	U	40	"							U
PFUdA	U	40	"							U
LCS (1911036-BS1)				Prepared: 11/18/19 Analyzed: 11/19/19						
ASBPROC-800PFAS										
4:2FTS	324	37	ng/L	374.00		86.7	67.1-125			
6:2FTS	367	38	"	380.00		96.6	49.2-134			
8:2FTS	332	38	"	384.00		86.6	56.4-136			
FOSA	339	40	"	400.00		84.7	57.7-148			
HFPO-DA	435	40	"	400.00		109	51.1-127			
N-MeFOSAA	356	160	"	400.00		89.0	43.2-178			
PFBA	369	40	"	400.00		92.3	67.9-118			
PFBS	333	35	"	354.00		94.2	68.2-118			
PFDA	350	160	"	400.00		87.5	47.4-162			
PFDoA	366	40	"	400.00		91.4	56.5-155			
PFDS	375	39	"	386.00		97.1	35.1-168			
PFHpA	360	40	"	400.00		89.9	72.8-116			
PFHpS	344	38	"	380.00		90.5	59.7-130			

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911036 - S PFC										
LCS (1911036-BS1)				Prepared: 11/18/19 Analyzed: 11/19/19						
PFHxA	355	40	ng/L	400.00		88.9	62.6-127			
PFHxS	345	36	"	364.80		94.5	69.5-117			
PFNA	361	40	"	400.00		90.1	64.1-128.4			
PFNS	311	38	"	384.00		81.0	63.3-126			
PFOA	356	40	"	400.00		88.9	66.7-122			
PFOS	381	37	"	370.20		103	70.4-122			
PFPeA	355	40	"	400.00		88.8	72-115			
PFPeS	334	38	"	376.00		88.7	69-117			
PFTrDA	345	40	"	400.00		86.2	32.2-215			
PFUdA	360	40	"	400.00		90.0	65.8-142			
Matrix Spike (1911036-MS1)	**Source: E194503-31**			Prepared: 11/18/19 Analyzed: 11/20/19						
ASBPROC-800PFAS										
4:2FTS	346	37	ng/L	374.00	U	92.5	70-133			
6:2FTS	341	38	"	380.00	U	89.7	58-143			
8:2FTS	328	38	"	384.00	U	85.5	66-126			
FOSA	358	40	"	400.00	U	89.6	61-138			
HFPO-DA	440	40	"	400.00	U	110	45-129			
N-MeFOSAA	320	160	"	400.00	U	80.1	47-169			
PFBA	364	40	"	400.00	U	91.1	60-141			
PFBS	338	35	"	354.00	U	95.3	62-135			
PFDA	345	160	"	400.00	U	86.3	53-156			
PFDoA	318	40	"	400.00	U	79.4	30-172			
PFDS	338	39	"	386.00	U	87.6	44-151			
PFHpA	362	40	"	400.00	U	90.6	75-122			
PFHpS	347	38	"	380.00	U	91.4	66-132			
PFHxA	367	40	"	400.00	U	91.8	64-138			
PFHxS	346	36	"	364.80	U	94.8	72-124			
PFNA	349	40	"	400.00	U	87.3	72-129			
PFNS	308	38	"	384.00	U	80.2	61-126			
PFOA	368	40	"	400.00	U	92.1	74-127			
PFOS	321	37	"	370.20	U	86.7	68-132			
PFPeA	369	40	"	400.00	U	92.2	75-122			
PFPeS	327	38	"	376.00	U	87.0	72-122			
PFTrDA	265	40	"	400.00	U	66.4	10-193			
PFUdA	329	40	"	400.00	U	82.1	44-164			

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911036 - S PFC										
Matrix Spike Dup (1911036-MSD1)	**Source: E194503-31**			Prepared: 11/18/19 Analyzed: 11/20/19						
ASBPROC-800PFAS										
4:2FTS	346	37	ng/L	361.00	U	95.8	70-133	0.0421	34	
6:2FTS	334	37	"	366.80	U	91.0	58-143	2.09	45	
8:2FTS	305	38	"	370.66	U	82.4	66-126	7.20	56	
FOSA	329	39	"	386.10	U	85.2	61-138	8.58	39	
HFPO-DA	463	39	"	386.10	U	120	45-129	5.06	57	
N-MeFOSAA	346	160	"	386.10	U	89.7	47-169	7.86	65	
PFBA	347	39	"	386.10	U	89.9	60-141	4.92	37	
PFBS	351	35	"	341.70	U	103	62-135	4.05	32	
PFDA	343	160	"	386.10	U	88.8	53-156	0.705	57	
PFDoA	305	39	"	386.10	U	78.9	30-172	4.18	56	
PFDS	312	38	"	372.59	U	83.7	44-151	8.15	66	
PFHpA	369	39	"	386.10	U	95.7	75-122	1.89	26	
PFHpS	350	37	"	366.80	U	95.4	66-132	0.739	28	
PFHxA	369	39	"	386.10	U	95.6	64-138	0.601	42	
PFHxS	342	36	"	352.12	U	97.1	72-124	1.10	32	
PFNA	337	39	"	386.10	U	87.4	72-129	3.52	31	
PFNS	307	38	"	370.66	U	82.8	61-126	0.289	35	
PFOA	369	39	"	386.10	U	95.6	74-127	0.157	32	
PFOS	335	36	"	357.34	U	93.9	68-132	4.38	37	
PFPeA	380	39	"	386.10	U	98.3	75-122	2.92	27	
PFPeS	357	37	"	362.93	U	98.2	72-122	8.65	29	
PFTrDA	280	39	"	386.10	U	72.4	10-193	5.17	106	
PFUdA	321	39	"	386.10	U	83.2	44-164	2.28	48	
MRL Verification (1911036-PS1)				Prepared: 11/18/19 Analyzed: 11/19/19						
ASBPROC-800PFAS										
4:2FTS	38.7	37	ng/L	37.400		104	47.1-145			MRL-2
6:2FTS	28.3	38	"	38.000		74.6	29.2-154			MRL-2, Q-2, J
8:2FTS	32.9	38	"	38.400		85.6	36.4-156			MRL-2, Q-2, J
FOSA	33.8	40	"	40.000		84.5	37.7-168			MRL-2, Q-2, J
HFPO-DA	50.8	40	"	40.000		127	31.3-147			MRL-2
PFBA	38.8	40	"	40.000		97.1	47.9-138			MRL-2, Q-2, J
PFBS	30.8	35	"	35.400		87.0	48.2-138			MRL-2, Q-2, J
PFDoA	33.9	40	"	40.000		84.7	36.5-175			MRL-2, Q-2, J

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911036 - S PFC										
MRL Verification (1911036-PS1)				Prepared: 11/18/19 Analyzed: 11/19/19						
PFDS	34.5	39	ng/L	38.600		89.3	15.1-188			MRL-2, Q-2, J
PFHpA	38.6	40	"	40.000		96.5	52.8-136			MRL-2, Q-2, J
PFHpS	40.9	38	"	38.000		108	39.7-150			MRL-2
PFHxA	33.5	40	"	40.000		83.7	42.6-147			MRL-2, Q-2, J
PFHxS	32.7	36	"	36.480		89.5	49.5-138			MRL-2, Q-2, J
PFNA	33.3	40	"	40.000		83.3	44.1-148			MRL-2, Q-2, J
PFNS	30.1	38	"	38.400		78.5	43.3-146			MRL-2, Q-2, J
PFOA	37.4	40	"	40.000		93.5	46.7-142			MRL-2, Q-2, J
PFOS	29.7	37	"	37.020		80.3	50.4-142			MRL-2, Q-2, J
PFPeA	37.6	40	"	40.000		93.9	52-135			MRL-2, Q-2, J
PFPeS	32.6	38	"	37.600		86.7	49-137			MRL-2, Q-2, J
PFTrDA	31.6	40	"	40.000		79.1	12.2-235			MRL-2, Q-2, J
PFUdA	32.2	40	"	40.000		80.5	45.8-162			MRL-2, Q-2, J
MRL Verification (1911036-PS2)				Prepared: 11/18/19 Analyzed: 11/19/19						
ASBPROC-800PFAS										
N-MeFOSAA	141	160	ng/L	160.00		88.0	23.2-198			MRL-2, Q-2, J
PFDA	138	160	"	160.00		86.5	27.4-182			MRL-2, Q-2, J

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-2	MRL verification for Non-Potable Water matrix
Q-2	Result greater than MDL but less than MRL.

Appendix B:
Sediment PFAS and Percent Solids Analytical Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 20-0018
Project: 20-0018, Ambient PFAS in the Chattooga River - Reported by Diana Burdette

December 11, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 20-0018, Ambient PFAS in the Chattooga River

FROM: Diana Burdette
OCS Analyst

THRU: Jeffrey Hendel, Chief
LSB Organic Chemistry Section

TO: Greg White

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Semi Volatile Organics (SVOA)		
PFAS	ASBPROC-800PFAS (Soil)	

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

SAMPLES INCLUDED IN THIS REPORT

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
20-0018-CHR01-1119-SD	E194503-04	Sediment	11/6/19 14:45	11/7/19 13:53
20-0018-CHR01-DUP-1119-SD	E194503-06	Sediment	11/6/19 15:00	11/7/19 13:53
20-0018-CHR02-1119-SD	E194503-08	Sediment	11/6/19 12:25	11/7/19 13:53
20-0018-CHR03-1119-SD	E194503-10	Sediment	11/6/19 10:15	11/7/19 13:53
20-0018-CHR04-1119-SD	E194503-12	Sediment	11/6/19 09:25	11/7/19 13:53
20-0018-CHR05-1119-SD	E194503-14	Sediment	11/5/19 16:20	11/7/19 13:53
20-0018-CHR06-1119-SD	E194503-16	Sediment	11/5/19 13:50	11/7/19 13:53
20-0018-CHR07-1119-SD	E194503-18	Sediment	11/4/19 16:40	11/7/19 13:53
20-0018-CHR08-1119-SD	E194503-20	Sediment	11/4/19 15:40	11/7/19 13:53
20-0018-HIC01-1119-SD	E194503-22	Sediment	11/6/19 11:15	11/7/19 13:53
20-0018-MIC01-1119-SD	E194503-24	Sediment	11/6/19 13:40	11/7/19 13:53
20-0018-RAC01-1119-SD	E194503-26	Sediment	11/5/19 11:30	11/7/19 13:53
20-0018-TEC01-1119-SD	E194503-28	Sediment	11/5/19 09:30	11/7/19 13:53
20-0018-TOC01-1119-SD	E194503-30	Sediment	11/4/19 15:00	11/7/19 13:53

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
QL-1	Laboratory Control Spike Recovery less than method control limits
QM-1	Matrix Spike Recovery less than method control limits

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-1119-SD **Lab ID:** E194503-04

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 14:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
335-76-2	PFDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
307-55-1	PFDoA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
307-24-4	PFHxA	82	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
375-95-1	PFNA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
335-67-1	PFOA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
1763-23-1	PFOS	100	J, Q-2	ng/kg dry	110	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
2706-90-3	PFPeA	170		ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-1119-SD **Lab ID:** E194503-04

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 14:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-DUP-1119-SD **Lab ID:** E194503-06

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
375-22-4	PFBA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
335-76-2	PFDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
307-55-1	PFDoA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
375-85-9	PFHpA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
307-24-4	PFHxA	65	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
355-46-4	PFHxS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
335-67-1	PFOA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
1763-23-1	PFOS	92	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
2706-90-3	PFPeA	150		ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-DUP-1119-SD **Lab ID:** E194503-06

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
72629-94-8	PFTrDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS
2058-94-8	PFUdA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 11:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR02-1119-SD **Lab ID:** E194503-08

Station ID: CHR02 **Matrix:** Sediment

Date Collected: 11/6/19 12:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	160	U	ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
27619-97-2	6:2FTS	160	U	ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
39108-34-4	8:2FTS	170	U, J, QL-1	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
754-91-6	FOSA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
13252-13-6	HFPO-DA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
375-22-4	PFBA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
375-73-5	PFBS	330		ng/kg dry	150	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
335-76-2	PFDA	300		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
307-55-1	PFDoA	640		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
335-77-3	PFDS	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
375-85-9	PFHpA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
375-92-8	PFHpS	160	U	ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
307-24-4	PFHxA	250		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
355-46-4	PFHxS	160	U	ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
375-95-1	PFNA	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
68259-12-1	PFNS	170	U	ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
335-67-1	PFOA	210		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
1763-23-1	PFOS	1700		ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
2706-90-3	PFPeA	470		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR02-1119-SD **Lab ID:** E194503-08

Station ID: CHR02 **Matrix:** Sediment

Date Collected: 11/6/19 12:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	160	U	ng/kg dry	160	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
72629-94-8	PFTrDA	180		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS
2058-94-8	PFUdA	190		ng/kg dry	170	11/20/19 9:47	11/21/19 12:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR03-1119-SD **Lab ID:** E194503-10

Station ID: CHR03 **Matrix:** Sediment

Date Collected: 11/6/19 10:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
335-76-2	PFDA	91	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
307-55-1	PFDoA	190		ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
307-24-4	PFHxA	110	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
375-95-1	PFNA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
335-67-1	PFOA	98	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
1763-23-1	PFOS	650		ng/kg dry	110	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
2706-90-3	PFPeA	210		ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR03-1119-SD **Lab ID:** E194503-10

Station ID: CHR03 **Matrix:** Sediment

Date Collected: 11/6/19 10:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
72629-94-8	PFTrDA	72	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR04-1119-SD **Lab ID:** E194503-12

Station ID: CHR04 **Matrix:** Sediment

Date Collected: 11/6/19 9:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
27619-97-2	6:2FTS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
39108-34-4	8:2FTS	110	U, J, QL-1	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
375-73-5	PFBS	100	U	ng/kg dry	100	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
335-76-2	PFDA	80	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
307-55-1	PFDoA	73	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
335-77-3	PFDS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
375-92-8	PFHpS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
307-24-4	PFHxA	200		ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
375-95-1	PFNA	55	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
68259-12-1	PFNS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
335-67-1	PFOA	160		ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
1763-23-1	PFOS	650		ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
2706-90-3	PFPeA	510		ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR04-1119-SD **Lab ID:** E194503-12

Station ID: CHR04 **Matrix:** Sediment

Date Collected: 11/6/19 9:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 12:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR05-1119-SD **Lab ID:** E194503-14

Station ID: CHR05 **Matrix:** Sediment

Date Collected: 11/5/19 16:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
375-22-4	PFBA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
335-76-2	PFDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
307-55-1	PFDoA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
335-77-3	PFDS	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
375-85-9	PFHpA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
307-24-4	PFHxA	160		ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
355-46-4	PFHxS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
335-67-1	PFOA	140		ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
1763-23-1	PFOS	400		ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
2706-90-3	PFPeA	370		ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR05-1119-SD **Lab ID:** E194503-14

Station ID: CHR05 **Matrix:** Sediment

Date Collected: 11/5/19 16:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
72629-94-8	PFTrDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS
2058-94-8	PFUdA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR06-1119-SD **Lab ID:** E194503-16

Station ID: CHR06 **Matrix:** Sediment

Date Collected: 11/5/19 13:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
375-22-4	PFBA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
335-76-2	PFDA	91	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
307-55-1	PFDoA	63	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
375-85-9	PFHpA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
307-24-4	PFHxA	84	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
355-46-4	PFHxS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
335-67-1	PFOA	53	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
1763-23-1	PFOS	300		ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
2706-90-3	PFPeA	200		ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR06-1119-SD **Lab ID:** E194503-16

Station ID: CHR06 **Matrix:** Sediment

Date Collected: 11/5/19 13:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
72629-94-8	PFTrDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS
2058-94-8	PFUdA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 13:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR07-1119-SD **Lab ID:** E194503-18

Station ID: CHR07 **Matrix:** Sediment

Date Collected: 11/4/19 16:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
335-76-2	PFDA	83	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
307-55-1	PFDoA	60	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
307-24-4	PFHxA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
375-95-1	PFNA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
335-67-1	PFOA	64	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
1763-23-1	PFOS	190		ng/kg dry	110	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
2706-90-3	PFPeA	66	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR07-1119-SD **Lab ID:** E194503-18

Station ID: CHR07 **Matrix:** Sediment

Date Collected: 11/4/19 16:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 13:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR08-1119-SD **Lab ID:** E194503-20

Station ID: CHR08 **Matrix:** Sediment

Date Collected: 11/4/19 15:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
375-22-4	PFBA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
335-76-2	PFDA	300		ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
307-55-1	PFDoA	120	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
375-85-9	PFHpA	87	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
307-24-4	PFHxA	110	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
355-46-4	PFHxS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
335-67-1	PFOA	220		ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
1763-23-1	PFOS	300		ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
2706-90-3	PFPeA	180		ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR08-1119-SD **Lab ID:** E194503-20

Station ID: CHR08 **Matrix:** Sediment

Date Collected: 11/4/19 15:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
72629-94-8	PFTrDA	51	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS
2058-94-8	PFUdA	180		ng/kg dry	130	11/20/19 9:47	11/21/19 14:14	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-HIC01-1119-SD **Lab ID:** E194503-22

Station ID: HIC01 **Matrix:** Sediment

Date Collected: 11/6/19 11:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
375-22-4	PFBA	220		ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
335-76-2	PFDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
307-55-1	PFDoA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
375-85-9	PFHpA	100	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
307-24-4	PFHxA	440		ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
375-95-1	PFNA	77	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
335-67-1	PFOA	530		ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
1763-23-1	PFOS	330		ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
2706-90-3	PFPeA	830		ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-HIC01-1119-SD **Lab ID:** E194503-22

Station ID: HIC01 **Matrix:** Sediment

Date Collected: 11/6/19 11:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:34	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-MIC01-1119-SD **Lab ID:** E194503-24

Station ID: MIC01 **Matrix:** Sediment

Date Collected: 11/6/19 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
335-76-2	PFDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
307-55-1	PFDoA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
307-24-4	PFHxA	110	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
375-95-1	PFNA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
335-67-1	PFOA	51	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
1763-23-1	PFOS	130		ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
2706-90-3	PFPeA	230		ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-MIC01-1119-SD **Lab ID:** E194503-24

Station ID: MIC01 **Matrix:** Sediment

Date Collected: 11/6/19 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 14:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-RAC01-1119-SD **Lab ID:** E194503-26

Station ID: RAC01 **Matrix:** Sediment

Date Collected: 11/5/19 11:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
754-91-6	FOSA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
13252-13-6	HFPO-DA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
375-22-4	PFBA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
335-76-2	PFDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
307-55-1	PFDoA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
375-85-9	PFHpA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
307-24-4	PFHxA	140		ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
375-95-1	PFNA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
335-67-1	PFOA	69	J, Q-2	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
1763-23-1	PFOS	300		ng/kg dry	110	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
2706-90-3	PFPeA	330		ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-RAC01-1119-SD **Lab ID:** E194503-26

Station ID: RAC01 **Matrix:** Sediment

Date Collected: 11/5/19 11:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
72629-94-8	PFTrDA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS
2058-94-8	PFUdA	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:13	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TEC01-1119-SD **Lab ID:** E194503-28

Station ID: TEC01 **Matrix:** Sediment

Date Collected: 11/5/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
375-22-4	PFBA	200		ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
375-73-5	PFBS	190		ng/kg dry	110	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
335-76-2	PFDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
307-55-1	PFDoA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
375-85-9	PFHpA	73	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
307-24-4	PFHxA	450		ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
355-46-4	PFHxS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
335-67-1	PFOA	200		ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
1763-23-1	PFOS	200		ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
2706-90-3	PFPeA	1100		ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TEC01-1119-SD **Lab ID:** E194503-28

Station ID: TEC01 **Matrix:** Sediment

Date Collected: 11/5/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
72629-94-8	PFTrDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS
2058-94-8	PFUdA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:33	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TOC01-1119-SD **Lab ID:** E194503-30

Station ID: TOC01 **Matrix:** Sediment

Date Collected: 11/4/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
757124-72-4	4:2FTS	120	U, J, QM-1	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
27619-97-2	6:2FTS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
39108-34-4	8:2FTS	120	U, J, QM-1, QL-1	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
754-91-6	FOSA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
13252-13-6	HFPO-DA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
2355-31-9	N-MeFOSAA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
375-22-4	PFBA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
375-73-5	PFBS	110	U	ng/kg dry	110	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
335-76-2	PFDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
307-55-1	PFDoA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
335-77-3	PFDS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
375-85-9	PFHpA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
375-92-8	PFHpS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
307-24-4	PFHxA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
355-46-4	PFHxS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
375-95-1	PFNA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
68259-12-1	PFNS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
335-67-1	PFOA	74	J, Q-2, QM-1	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
1763-23-1	PFOS	200		ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
2706-90-3	PFPeA	87	J, Q-2	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS

Semi Volatile Organics

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TOC01-1119-SD **Lab ID:** E194503-30

Station ID: TOC01 **Matrix:** Sediment

Date Collected: 11/4/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
2706-91-4	PFPeS	120	U	ng/kg dry	120	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
72629-94-8	PFTrDA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS
2058-94-8	PFUdA	130	U	ng/kg dry	130	11/20/19 9:47	11/21/19 15:53	ASBPROC-800PFAS

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911043 - S PFC										
Blank (1911043-BLK1)				Prepared: 11/20/19 Analyzed: 11/21/19						
ASBPROC-800PFAS										
4:2FTS	U	94	ng/kg dry							U
6:2FTS	U	95	"							U
8:2FTS	U	96	"							QL-1, U
FOSA	U	100	"							U
HFPO-DA	U	100	"							U
N-MeFOSAA	U	100	"							U
PFBA	U	100	"							U
PFBS	U	88	"							U
PFDA	U	100	"							U
PFDoA	U	100	"							U
PFDS	U	96	"							U
PFHpA	U	100	"							U
PFHpS	U	95	"							U
PFHxA	U	100	"							U
PFHxS	U	91	"							U
PFNA	U	100	"							U
PFNS	U	96	"							U
PFOA	U	100	"							U
PFOS	U	93	"							U
PFPeA	U	100	"							U
PFPeS	U	94	"							U
PFTrDA	U	100	"							U
PFUdA	U	100	"							U
LCS (1911043-BS1)				Prepared: 11/20/19 Analyzed: 11/21/19						
ASBPROC-800PFAS										
4:2FTS	723	94	ng/kg dry	935.00		77.4	70-130			
6:2FTS	702	95	"	950.00		73.8	70-130			
8:2FTS	660	96	"	960.00		68.7	70-130			QL-1
FOSA	881	100	"	1000.0		88.1	70-130			
HFPO-DA	969	100	"	1000.0		96.9	70-130			
N-MeFOSAA	769	100	"	1000.0		76.9	70-130			
PFBA	921	100	"	1000.0		92.1	70-130			
PFBS	877	88	"	885.00		99.1	70-130			
PFDA	877	100	"	1000.0		87.7	70-130			
PFDoA	803	100	"	1000.0		80.3	70-130			
PFDS	880	96	"	965.00		91.2	70-130			
PFHpA	890	100	"	1000.0		89.0	70-130			
PFHpS	878	95	"	950.00		92.4	70-130			

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911043 - S PFC										
LCS (1911043-BS1)				Prepared: 11/20/19 Analyzed: 11/21/19						
PFHxA	912	100	ng/kg dry	1000.0		91.2	70-130			
PFHxS	969	91	"	912.00		106	70-130			
PFNA	851	100	"	1000.0		85.1	70-130			
PFNS	798	96	"	960.00		83.1	70-130			
PFOA	867	100	"	1000.0		86.7	70-130			
PFOS	853	93	"	925.50		92.1	70-130			
PFPeA	905	100	"	1000.0		90.5	70-130			
PFPeS	880	94	"	940.00		93.7	70-130			
PFTrDA	735	100	"	1000.0		73.5	70-130			
PFUdA	828	100	"	1000.0		82.8	70-130			
Matrix Spike (1911043-MS1)	**Source: E194503-30**			Prepared: 11/20/19 Analyzed: 11/21/19						
ASBPROC-800PFAS										
4:2FTS	725	110	ng/kg dry	1113.1	U	65.1	70-133			QM-1
6:2FTS	754	110	"	1131.0	U	66.7	58-143			
8:2FTS	670	110	"	1142.9	U	58.6	66-126			QM-1
FOSA	891	120	"	1190.5	U	74.8	61-138			
HFPO-DA	1010	120	"	1190.5	U	84.7	45-129			
N-MeFOSAA	733	120	"	1190.5	U	61.6	47-169			
PFBA	937	120	"	1190.5	U	78.7	60-141			
PFBS	926	110	"	1053.6	U	87.9	62-135			
PFDA	917	120	"	1190.5	U	77.0	53-156			
PFDoA	806	120	"	1190.5	U	67.7	30-172			
PFDS	877	110	"	1148.8	U	76.3	44-151			
PFHpA	918	120	"	1190.5	U	77.1	75-122			
PFHpS	887	110	"	1131.0	U	78.5	66-132			
PFHxA	933	120	"	1190.5	43.9	74.7	64-138			
PFHxS	904	110	"	1085.7	U	83.3	70-130			
PFNA	886	120	"	1190.5	U	74.5	72-129			
PFNS	815	110	"	1142.9	U	71.3	61-126			
PFOA	904	120	"	1190.5	73.9	69.7	74-127			QM-1
PFOS	1030	110	"	1101.8	201	75.3	68-132			
PFPeA	981	120	"	1190.5	86.6	75.2	75-122			
PFPeS	855	110	"	1119.0	U	76.4	72-122			
PFTrDA	706	120	"	1190.5	U	59.3	10-193			
PFUdA	834	120	"	1190.5	U	70.0	44-164			

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911043 - S PFC										
Matrix Spike Dup (1911043-MSD1)	**Source: E194503-30**			Prepared: 11/20/19 Analyzed: 11/21/19						
ASBPROC-800PFAS										
4:2FTS	773	110	ng/kg dry	1093.6	U	70.7	70-133	6.45	34	
6:2FTS	762	110	"	1111.1	U	68.6	58-143	1.04	45	
8:2FTS	864	110	"	1122.8	U	76.9	66-126	25.3	56	
FOSA	994	120	"	1169.6	U	85.0	61-138	10.9	39	
HFPO-DA	1140	120	"	1169.6	U	97.7	45-129	12.5	57	
N-MeFOSAA	825	120	"	1169.6	U	70.5	47-169	11.8	65	
PFBA	1050	120	"	1169.6	U	89.6	60-141	11.3	37	
PFBS	952	100	"	1035.1	U	92.0	62-135	2.75	32	
PFDA	1020	120	"	1169.6	U	87.2	53-156	10.6	57	
PFDoA	908	120	"	1169.6	U	77.7	30-172	11.9	56	
PFDS	952	110	"	1128.7	U	84.4	44-151	8.28	66	
PFHpA	1000	120	"	1169.6	U	85.6	75-122	8.70	26	
PFHpS	1030	110	"	1111.1	U	92.9	66-132	15.1	28	
PFHxA	1060	120	"	1169.6	43.9	86.8	64-138	12.7	42	
PFHxS	950	110	"	1066.7	U	89.1	70-130	4.92	20	
PFNA	962	120	"	1169.6	U	82.2	72-129	8.16	31	
PFNS	939	110	"	1122.8	U	83.7	61-126	14.2	35	
PFOA	1000	120	"	1169.6	73.9	79.5	74-127	10.5	32	
PFOS	1100	110	"	1082.5	201	83.0	68-132	6.41	37	
PFPeA	1040	120	"	1169.6	86.6	81.9	75-122	6.28	27	
PFPeS	966	110	"	1099.4	U	87.9	72-122	12.2	29	
PFTrDA	820	120	"	1169.6	U	70.1	10-193	14.9	106	
PFUdA	961	120	"	1169.6	U	82.1	44-164	14.2	48	
MRL Verification (1911043-PS1)				Prepared: 11/20/19 Analyzed: 11/21/19						
ASBPROC-800PFAS										
4:2FTS	64.7	94	ng/kg dry	93.500		69.2	50-150			MRL-3, Q-2, J
6:2FTS	69.2	95	"	95.000		72.9	50-150			MRL-3, Q-2, J
8:2FTS	49.4	96	"	96.000		51.5	50-150			MRL-3, Q-2, J
FOSA	82.9	100	"	100.00		82.9	50-150			MRL-3, Q-2, J
HFPO-DA	119	100	"	100.00		119	50-150			MRL-3
N-MeFOSAA	65.0	100	"	100.00		65.0	50-150			MRL-3, Q-2, J
PFBA	89.8	100	"	100.00		89.8	50-150			MRL-3, Q-2, J
PFBS	76.4	88	"	88.500		86.4	50-150			MRL-3, Q-2, J

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1911043 - S PFC										
MRL Verification (1911043-PS1)				Prepared: 11/20/19 Analyzed: 11/21/19						
PFDA	75.1	100	ng/kg dry	100.00		75.1	50-150			MRL-3, Q-2, J
PFDoA	86.3	100	"	100.00		86.3	50-150			MRL-3, Q-2, J
PFDS	74.9	96	"	96.500		77.6	50-150			MRL-3, Q-2, J
PFHpA	88.8	100	"	100.00		88.8	50-150			MRL-3, Q-2, J
PFHpS	74.8	95	"	95.000		78.7	50-150			MRL-3, Q-2, J
PFHxA	81.3	100	"	100.00		81.3	50-150			MRL-3, Q-2, J
PFHxS	88.1	91	"	91.200		96.6	50-150			MRL-3, Q-2, J
PFNA	72.6	100	"	100.00		72.6	50-150			MRL-3, Q-2, J
PFNS	85.8	96	"	96.000		89.4	50-150			MRL-3, Q-2, J
PFOA	90.0	100	"	100.00		90.0	50-150			MRL-3, Q-2, J
PFOS	63.3	93	"	92.550		68.4	50-150			MRL-3, Q-2, J
PFPeA	87.2	100	"	100.00		87.2	50-150			MRL-3, Q-2, J
PFPeS	79.2	94	"	94.000		84.3	50-150			MRL-3, Q-2, J
PFTrDA	91.7	100	"	100.00		91.7	50-150			MRL-3, Q-2, J
PFUdA	82.9	100	"	100.00		82.9	50-150			MRL-3, Q-2, J

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-3	MRL verification for Soil matrix
Q-2	Result greater than MDL but less than MRL.
QL-1	Laboratory Control Spike Recovery less than method control limits
QM-1	Matrix Spike Recovery less than method control limits

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 20-0018
Project: 20-0018, Ambient PFAS in the Chattooga River - Reported by Floyd Wellborn

December 12, 2019

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 20-0018, Ambient PFAS in the Chattooga River

FROM: Floyd Wellborn
LSB Inorganic Chemistry Section Chief

THRU: Sandra Aker, Chief
Laboratory Services Branch

TO: Greg White

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Physical Properties (PHYSP)		
Physical Properties	EPA 200.2 (Soil)	ISO

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

SAMPLES INCLUDED IN THIS REPORT

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
20-0018-CHR01-1119-SD	E194503-04	Sediment	11/6/19 14:45	11/7/19 13:53
20-0018-CHR01-DUP-1119-SD	E194503-06	Sediment	11/6/19 15:00	11/7/19 13:53
20-0018-CHR02-1119-SD	E194503-08	Sediment	11/6/19 12:25	11/7/19 13:53
20-0018-CHR03-1119-SD	E194503-10	Sediment	11/6/19 10:15	11/7/19 13:53
20-0018-CHR04-1119-SD	E194503-12	Sediment	11/6/19 09:25	11/7/19 13:53
20-0018-CHR05-1119-SD	E194503-14	Sediment	11/5/19 16:20	11/7/19 13:53
20-0018-CHR06-1119-SD	E194503-16	Sediment	11/5/19 13:50	11/7/19 13:53
20-0018-CHR07-1119-SD	E194503-18	Sediment	11/4/19 16:40	11/7/19 13:53
20-0018-CHR08-1119-SD	E194503-20	Sediment	11/4/19 15:40	11/7/19 13:53
20-0018-HIC01-1119-SD	E194503-22	Sediment	11/6/19 11:15	11/7/19 13:53
20-0018-MIC01-1119-SD	E194503-24	Sediment	11/6/19 13:40	11/7/19 13:53
20-0018-RAC01-1119-SD	E194503-26	Sediment	11/5/19 11:30	11/7/19 13:53
20-0018-TEC01-1119-SD	E194503-28	Sediment	11/5/19 09:30	11/7/19 13:53
20-0018-TOC01-1119-SD	E194503-30	Sediment	11/4/19 15:00	11/7/19 13:53

DATA QUALIFIER DEFINITIONS

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-1119-SD **Lab ID:** E194503-04

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 14:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	78		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR01-DUP-1119-SD **Lab ID:** E194503-06

Station ID: CHR01 **Matrix:** Sediment

Date Collected: 11/6/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	75		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR02-1119-SD **Lab ID:** E194503-08

Station ID: CHR02 **Matrix:** Sediment

Date Collected: 11/6/19 12:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	52		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR03-1119-SD **Lab ID:** E194503-10

Station ID: CHR03 **Matrix:** Sediment

Date Collected: 11/6/19 10:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	74		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR04-1119-SD **Lab ID:** E194503-12

Station ID: CHR04 **Matrix:** Sediment

Date Collected: 11/6/19 9:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	75		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR05-1119-SD **Lab ID:** E194503-14

Station ID: CHR05 **Matrix:** Sediment

Date Collected: 11/5/19 16:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	73		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR06-1119-SD **Lab ID:** E194503-16

Station ID: CHR06 **Matrix:** Sediment

Date Collected: 11/5/19 13:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	71		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR07-1119-SD **Lab ID:** E194503-18

Station ID: CHR07 **Matrix:** Sediment

Date Collected: 11/4/19 16:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	73		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-CHR08-1119-SD **Lab ID:** E194503-20

Station ID: CHR08 **Matrix:** Sediment

Date Collected: 11/4/19 15:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	72		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-HIC01-1119-SD **Lab ID:** E194503-22

Station ID: HIC01 **Matrix:** Sediment

Date Collected: 11/6/19 11:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	81		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-MIC01-1119-SD **Lab ID:** E194503-24

Station ID: MIC01 **Matrix:** Sediment

Date Collected: 11/6/19 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	74		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-RAC01-1119-SD **Lab ID:** E194503-26

Station ID: RAC01 **Matrix:** Sediment

Date Collected: 11/5/19 11:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	78		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TEC01-1119-SD **Lab ID:** E194503-28

Station ID: TEC01 **Matrix:** Sediment

Date Collected: 11/5/19 9:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	75		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties

Project: 20-0018, Ambient PFAS in the Chattooga River

Sample ID: 20-0018-TOC01-1119-SD **Lab ID:** E194503-30

Station ID: TOC01 **Matrix:** Sediment

Date Collected: 11/4/19 15:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	78		%	0.0	12/04/19 14:03	12/05/19 10:17	EPA 200.2

Physical Properties (PHYSP) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1912008 - M % Solids										
Duplicate (1912008-DUP1)		**Source: E194503-18**		Prepared: 12/04/19 Analyzed: 12/05/19						
EPA 200.2										
% Solids	71.981	0.0	%		72.852			1.20	10	

Notes and Definitions for QC Samples

END OF DOCUMENT